A Lecture
ON
RECURRENT EFFUSION INTO THE KNEE-JOINT AFTER INJURY,

BASED ON A SERIES OF 750 CASES.

Delivered at St. George's Hospital

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GENTLEMEN,—Effusion into the knee-joint following upon injury direct or indirect is so commonly met with in practice that it is not difficult to obtain a large experience of it; indeed, any practitioner of a few years' standing can hardly fail to have acquired a considerable practical knowledge of the condition. The 750 cases which I propose to consider now include those only in which the effusion was recurrent either spontaneously or after another injury, generally so slight that its effect upon a normal joint would have probably been unnoticed. Although the number of cases is at first sight large they cannot, of course, be regarded as an exceptional experience, but it is thought that a consideration of such a series representing an experience of many years may afford some useful information, especially as many common conditions, of which recurrent synovitis is one, are in times like these, when the attention of most people is concentrated upon the finding of something that is new or rare, frequently looked upon as being of poor account, merely, I suppose, because they are so frequently met with. For the purpose of this lecture recurrent effusion is held to mean a recurring effusion after an interval or intervals during which the joint, so far as can be seen, has resumed its normal condition, leading the patients to consider themselves "quite well," a limitation which necessarily excludes nearly all cases in which a diagnosis of tubercle can be made with sufficient certainty to justify its acceptance. Care has been taken to be sure, as far as possible, that the injuries mentioned by the patients were really the cause of the original effusion, all cases in which there was any doubt whatever about this having been carefully excluded. The accompanying table (Table I.) gives a general idea of the character of the cases dealt with.

I. CASES (509) ENTIRELY INDEPENDENT OF ANY CONSTITUTIONAL CONDITIONS.

(a) Cases (428) in which the symptoms of internal derangement were very precise.—In the 428 cases occurring under this heading are included some which I have already published elsewhere.[1] The difference shown in the implication of the sexes is, as would naturally be expected, very large, the proportion being 16 males to one female. This difference, although so large, is probably less than it would have been some years ago and unless the teachings of my later experience are at fault the increasing pursuit by women of athletic and various active exercises will before long largely increase the proportion on the feminine side. With regard to age the youngest patient seen was nine years old and the oldest was 72 years.[2] The left limb was concerned in considerably more than half the cases, whilst in 15 (1 in 28½ of the total number) both sides were involved. With one exception the defect in the second knee followed that in the first after an interval, but in one case, a most remarkable one, both knees were found to be "locked" in a semi-flexed position after a fall downstairs, the patient having apparently alighted simultaneously on both knees; this case was subsequently operated upon, the anterior two-thirds of the internal cartilage on each side being found displaced into the joint; on the left side the displaced part was intact; on the right side it was split. All other things being equal, the symptoms arising from lesions of the outer side of the joint were less acute than those connected with defects on the inner side; it was also noticed that when the outer semilunar cartilage seemed to be at fault the symptoms of pain and locking were referred to the popliteal space in at least half the cases. In all the cases operated upon in which the symptoms were referred posteriorly complete recovery followed the removal of the obviously displaced anterior part of the semilunar cartilage. In the total number of 428 cases the symptoms pointed to the inner side of the joint being concerned in 304, to the outer side in 113, and to both the inner and the outer side being involved in 11 (in two of these the diagnosis was subsequently confirmed by operation). 80 patients—i.e., about 20 per cent.—were treated by operation with the result seen in Table II., in connexion with which the operative treatment will be discussed. At first sight the percentage of cases operated upon may seem small, but it must be borne in mind that the patients seen were of all ages, some being too advanced in life to justify any pressure in the direction of operating. Some were in a

TABLE I.—CASES OF RECURRENT EFFUSION INTO THE KNEE-JOINT AFTER INJURY.

—	Class of case.	No.	Sex. M.	Sex. F.	Side. L.	Side. R.	Side. Both.	Operations	Nature of operation.
I.—Cases entirely independent of constitutional conditions (509).	Presenting definite signs of internal derangement.	428	402	26	293	120	15	80	Removal of semilunar cartilage and pedunculated bodies (see Table II.).
	Without signs of any kind except-ing recurrent effusion.	56	56	—	25	31	—	12	Exploratory (see Table II.).
	Obvious loose body (exclusive of osteo-arthritis).	21	12	9	7	14	—	16	Removal of loose bodies.
	Genu valgum.	4	4	—	—	4	—	2	Osteotomy.
II.—Cases influenced by constitutional conditions (241).	Osteo-arthritis.	107	84	23	31	43	33	8	Removal of loose bodies.
	Rheumatism and gout.	30	27	3	11	19	—	4	Incision 2; aspiration 2.
	Syphilis.	42	38	4	13	29	—	—	—
	Gonorrhœal rheumatism.	28	27	1	8	20	—	3	Incision 1; aspiration 2.
	Malaria.	18	18	—	7	11	—	1	Incision.
	Hæmophilia.	3	3	—	1	2	—	1	Aspiration.
	Quiet effusion in young people.	13	—	13	6	7	—	—	—
Total 750.	—	750	671	79	402	300	48	127	—
			750		750				

It will be seen that in the cases influenced by constitutional conditions tubercle is not included. This is accounted for by the fact that all the cases coming under observation whilst this series was being collected in which tubercle could be diagnosed with sufficient certainty had either progressed beyond the point at which effusion only was the symptom or presented examples of exacerbation rather than recurrence, inasmuch as between the attacks of swelling described the joints never became sufficiently normal to lead the patients to consider themselves well.

[1] Massage in Recent Fractures, &c., third edition.

[2] Table I. should have contained a column relating to the ages of the patients but the omission was unfortunately not noticed until the memoranda from which the table was compiled had been destroyed.

condition of health which negatived the propriety of active interference, others declined operation upon various scores, a considerable number selecting mechanical help in preference to the radical treatment.

(*b*) *Cases (56) presenting no other symptoms than mere recurrence of effusion without noticeable further injury.*—This is a very interesting class. The complaints made were simply that the affected knee occasionally swelled up without any apparent reason and without inconvenience beyond a slight feeling of weakness. The original effusion had, with two exceptions, come on after a twist or sprain of so slight a kind that it attracted little or no notice at the time; in the two exceptions a blow from a cricket ball in one case and a knock against the edge of a fender in the other accounted for the original lesion. In spite of the entire absence of other symptoms, in 12 of these cases which were subjected to operation the internal semilunar cartilage was found to be detached and displaced in five, the external in one, and in one of the cases both semilunar cartilages were displaced (*vide* Table II.) to such

TABLE II.—*Operations for Internal Derangement of the Knee-joint.*

Nature of operation.	No. of cases.	Sex. M.	Sex. F.	Side. Left.	Side. Right.	Side. Both.	Remarks.
Removal of pedunculated bodies; cartilage normal.	12	11	1	7	5	—	These cases all presented typical symptoms of internal derangement, occasional locking of the joint, &c.
Removal of internal semilunar cartilage.	56	54	2	41	13	2	Ditto, with the exception of five in which the only symptom was recurrent effusion.
Removal of external semilunar cartilage.	17	16	1	9	8	—	Ditto, with the exception of one case in which recurrent effusion was the only symptom.
Removal of both semilunar cartilages in the same knee.	2	2	—	1	1	—	In one of these there were typical symptoms of internal derangement, in the other there was recurrent effusion only.
Totals ...	87	83	4	53	27	2	—
		87		87			

In all these operations the abnormal parts were removed through a longitudinal incision from one and a half to two and a half inches long parallel with the ligamentum patellæ extending downwards to a point immediately below the line of the joint. In the two cases in which both the semilunar cartilages were displaced they were readily removed through a similar single longitudinal incision; in one case the incision was on the outer side of the joint, in the other case it was on the inner side.

an extent that the displaced portions lay under the intercondyloid notch; in the five instances in which the internal cartilage only was displaced it occupied a similar position. In the remaining five cases operated upon nothing abnormal could be detected in the joint. In two of these cases in which nothing abnormal was found no recurrence of effusion had occurred after an interval of two years, so it may fairly be assumed that the recovery was in them complete; in the three other cases the period during which they were under observation was too short to justify any definite conclusion with regard to their recovery. Of the 44 cases which were not operated upon 30 were treated with complete success by massage, exercises, electricity, &c.; in the remaining 14 the ultimate effect of the same treatment is not known.

Two practical lessons may clearly be learned from these cases: (1) that in recurrent effusion into the knee-joint after injury, independent of constitutional conditions, when the usual methods of treatment have failed to effect a cure exploratory operation is indicated on the grounds of the probability of internal derangement existing; and (2) that extensive displacement of one or even both semilunar cartilages may take place without the recurrence of any of the symptoms which are commonly regarded as characteristic of the lesion.

The remarkable absence of characteristic symptoms in some of these cases of semilunar detachment seems to be due to the displacement being so great that the affected cartilages lie under the intercondyloid notch and so escape in a great degree the liability to getting nipped between the bone ends. So far as my experience goes it may be said, speaking generally, that the cases in which the displacement is greatest give rise to fewer symptoms than those in which it is, although distinct, not very great, in consequence of the cartilage in the latter being more liable to be caught between the bones, a contention which receives further support from the fact that the trouble in the joint in many of these cases becomes less after a series of repeated attacks by which it is reasonable to assume the damaged structure has become more and more displaced. The position attained by some of these displaced cartilages is very remarkable. It is not, for an example, easy to understand the mechanism by which a displacement like that shown in Fig. 6 is produced but much more extraordinary abnormality is sometimes seen. In a case in this hospital some years ago in which amputation was performed in consequence of disorganisation of the knee-joint after an injury the internal semilunar cartilage entirely wanting in its proper place was found curled up behind the patella.

(*c*) *Obvious cases (21) of loose bodies in the joint.*—These call for little remark. The injury in each case was severe and was followed by excessive immediate swelling (from blood). In 14 of the cases operated upon a single fibrous loose body was found in each, the smallest mass being of the size of a horse-bean and the largest of the size of a cherry. In one of the two remaining cases two ovoid bodies were found; in the other the shape and structure of the body justified the diagnosis that it had been broken off the edge of the articular surface of the femur but no investigation was made to ascertain the point from which it came. The symptoms produced bore no accurate relation to the size of the loose body; speaking generally, however, the larger the body the less acute were the symptoms although the attacks in cases in which the larger bodies existed appeared to be more frequent.

(*d*) *Genu valgum* (*4*).—Although only four cases of this kind were met with in the series they are interesting because so far as my experience goes effusion into the joint in genu valgum is comparatively rare in spite of the disadvantage at which a distorted joint like that existing under such conditions would seem to be placed in the event of injury. The injury in all the cases was indirect and in each a rapid increase in the deformity was said to have followed. The two cases operated upon were treated by osteotomy of the lower end of the femur for the rectification of the deformity, after which no further attacks of effusion occurred. In the remaining two cases operation was declined. The patients were aged 12, 13½, 14, and 15 years respectively.

OPERATIONS FOR INTERNAL DERANGEMENT OF THE KNEE-JOINT.

The principal points in relation to these cases are set down in Table II.

In none of the 87 cases was a more extensive exploration of the joint found necessary than that mentioned. I have never found the transpatellar operation necessary in cases of this kind, as I have invariably been able to remove the original mechanical cause of defective movement or pain through the longitudinal lateral incision. Unless, however, I had actually had experience of its practicability I should have doubted being able to remove the detached portions of both semilunar cartilages through a single lateral incision, but the matter was not very difficult in the cases here recorded, as with a small blunt hook the detached cartilage on the side opposite to the incision could in each be drawn across and made accessible to the blades of a strong pair of curved scissors. It is worth noting that the external cartilage seems more easily accessible from an incision on the inner side of the joint than the internal cartilage is from an incision on the outer side. In cases, therefore, in which there is any sufficient reason to suspect detachment of both cartilages I should advocate an exploration through an incision on the inner side of the joint. Contrary to the practice and teachings of some surgeons I invariably examine the joint before closing it by means of the finger introduced through the operation wound. I have never known it to do harm and I have on several occasions thus obtained information which has enabled me to complete the restoration of the mechanics of the joint which, failing such an examination, would have been left defective. One very important practical point arises in relation to these

operations. It is often laid down as an axiom that no operation for internal derangement of the knee-joint should be considered complete in cases in which the joint is locked or extension is defective unless extension to the normal limit is immediately possible; the movements of the joint, in fact, at the end of the operation should be as perfect as those of the opposite limb. In cases of recent displacement of a semilunar cartilage this is undoubtedly sound teaching but it is certainly not so in old-standing displacement with restriction of movements—not a very rare class of case—when the mere removal of the mechanical obstacle in the joint itself does not always allow of *immediate* normal extension which is, however, recovered gradually by the aid of massage and exercises.

The importance of an appreciation of this point lies in the fact that no matter what operation is performed or how freely the joint is opened there are a certain number of cases in which a resumption of normal movement does not immediately follow the removal of the objective abnormality in the joint although complete recovery of all natural movement gradually follows, a matter which has a practical bearing upon the transpatellar exploration, as the following case which came under my notice after ankylosis had taken place will show. A man with a long-standing displacement of a semilunar cartilage, the knee being fixed in a slightly bent position, was operated upon by a surgeon of repute, the lateral incision being employed and the displaced structure removed. Complete extension being still impossible the joint was explored by the transpatellar method with a view to finding the obstacle to free movement. Nothing further was found and the defective movement remained as before; suppuration unfortunately followed and a stiff joint in the same slightly bent position resulted. The transpatellar exploration was obviously superfluous here and had the operator been content with the slighter operation complete movement would have been almost certainly obtained by the usual means—at least such is the conclusion that my experience in these cases leads me to. I very much doubt whether any obstacle to movement in conditions of this sort could exist which the finger introduced in the manner I have mentioned would fail to detect, assuming, of course, that it is endowed with sensation of average acuteness. An additional point of interest connected with the method of operation was very plainly demonstrated by the condition of the parts in every one of the cases operated upon in which the cartilage was displaced—viz., that not only would it have been useless but impossible to fix effectually in their normal place any of the displaced cartilages with the least prospect of their remaining in their restored position, a fact which, considering the number of cases dealt with, ought, I think, to be sufficient to dispose of the idea which I understand still exists, with some people, that a truly displaced cartilage can be *effectually* stitched in position. The result in all the cases but two was perfect, the mechanics of the joint being entirely normal. In one of the two exceptions the movements were slightly restricted as the patient declined to submit to the necessary manipulation; the defect, however, was not sufficient to interfere with ordinary occupations and no lameness was apparent. The other defective example occurred in a boy in whom the power of complete extension has not been quite regained, but as the operation in his case is comparatively recent (about eight months) a perfect result may yet ensue.[1]

Conditions of the damaged cartilages.—The injuries to the cartilages arranged themselves into seven groups which will be perhaps most readily understood from the following diagrams. Each diagram shows the condition found in an operation and forms the basis of a group in which are included all the cases presenting injuries either identical with, or of the same type as, that depicted.

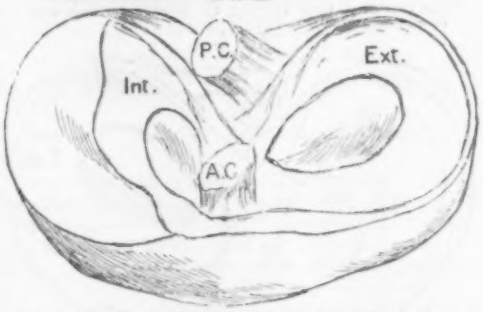
It is interesting to note, speaking generally, in cases affecting the external cartilage that the structure itself is much more damaged (i.e., split or torn) than is the case with the internal cartilage. This is precisely what would be anticipated seeing that in a large proportion of the instances in which the external cartilage was concerned the violence was very great and often direct, such as a fall on to the knee in jumping, and apart from the damage to the structure itself the violence resulting in detachment of the external cartilage was, with the few exceptions in which the internal cartilage was split or torn, greater than that leading to displacement of the opposite cartilage—a fact which is quite in accordance with what would be anticipated on anatomical grounds.

II. CASES (241) INFLUENCED BY CONSTITUTIONAL CONDITIONS.

As would naturally be expected, the existence of a constitutional dyscrasia exercises a considerable influence in these (1) in leading to the occurrence of symptoms from very slight causes and (2) in rendering recovery difficult or impossible unless the constitutional conditions be treated or, at all events, taken into account—a matter also of consequence in relation to prognosis.

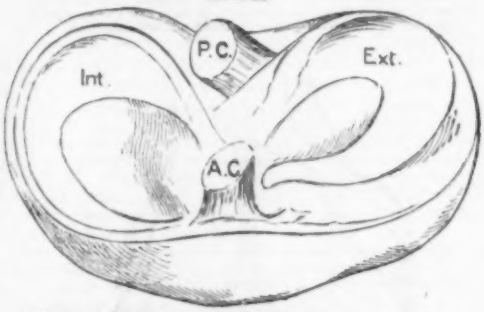
(*a*) *Osteo-arthritis* (*107*).—It is, I am aware, open to question whether cases of this type should be included in a

FIG. 1.



Anterior two-thirds of cartilage displaced inwards; anterior extremity remaining attached (33 cases, 30 affecting the internal cartilage and three the external).

FIG. 2.

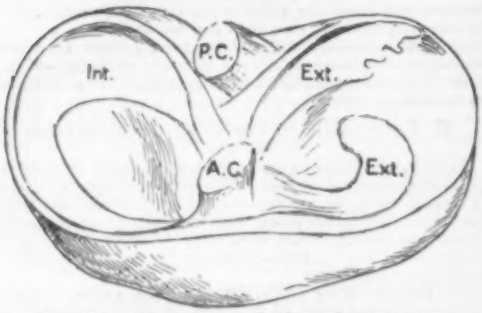


Anterior half of the cartilage displaced inwards; anterior extremity torn away from its attachments (20 cases, 18 affecting the internal cartilage and two the external).

series like that I am considering, but as in all of those which I have included here the condition undoubtedly followed upon injury and the effusion was recurrent after an interval or intervals of apparent recovery they may fairly be considered as coming within the category. All when first coming under observation were very early instances of osteo-arthritis, in fact, in about 50 per cent. the diagnosis of osteo-arthritis was only arrived at with certainty after repeated recurrence of effusion had been followed by some characteristic sign of articular change. The initiating injury was invariably slight and generally indirect—e.g., a twist or sprain. Of the cases operated upon in only two was a loose body felt before the treatment; in the remainder attacks of acute pain, in three cases leading to sudden falls, led to operative investigation; in all the cases explored the loose bodies were found and removed through a longitudinal incision at the inner side of the joint. As would naturally be expected, males were affected largely in excess of females, about four to one, the right knee being concerned more frequently than the left. When the second knee became affected it was invariably the result of some twist, strain,

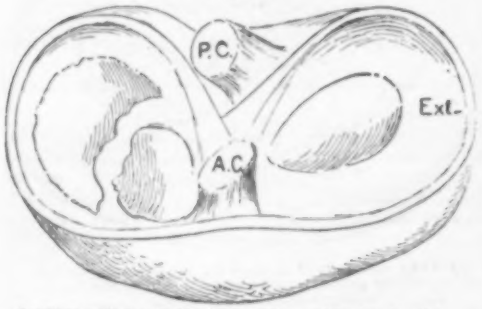
[1] One disaster only has followed the exploration of a knee-joint in my practice. This happened some years ago in a hospital case, not coming under the category of those now being considered, in which some sponges that had previously been used by another operator in a case of gangrenous appendicitis were included, by some regrettable oversight, amongst those used at my operation. Acute septic infection followed in this and two other cases operated upon on the same day.

FIG. 3.



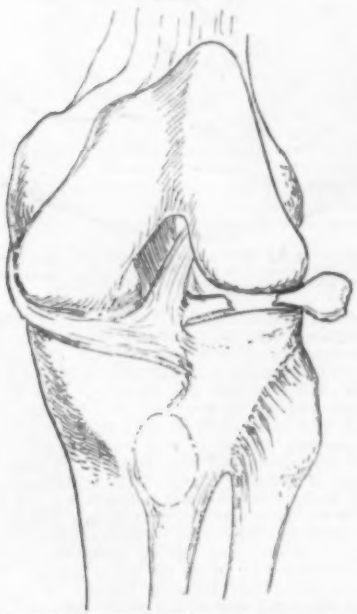
Cartilage torn across near the centre; posterior part of the anterior segment displaced inwards in some of the cases; in the remainder the posterior segment was the displaced part (ten cases, three affecting the internal cartilage and seven the external).

FIG. 4.



Cartilage split longitudinally over the middle two-fourths, the inner portion remaining attached at both ends and displaced inwards (five cases, two affecting the internal cartilage and three the external). In each case the marginal portion of the cartilage was loosened but not displaced.

FIG. 5.



Cartilage torn from its connexions anteriorly and pushed outwards, thus producing a tumour readily felt under the soft parts (three cases, one affecting the internal cartilage and two the external).

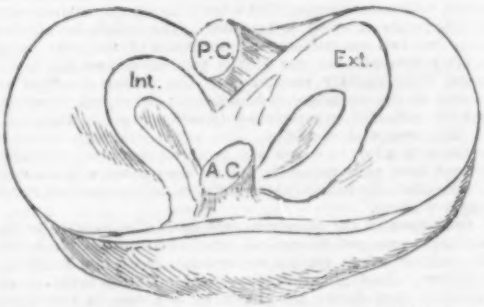
or stumble in attempting to "save" the knee already involved.

With regard to the treatment of these cases nothing seemed to have more than a palliative effect excepting the radiant heat-bath massage and electric vibration which in 23 cases of comparatively recent origin appeared to effect an actual cure. In a certain percentage the pain at the onset of effusion was very great but as a rule rapidly subsided. When persistent a gentle application of the thermo-cautery over the seat of intensity was followed by

FIG. 6.

Cartilage torn from the lateral connexions and turned up on to the articular surface of the femur (two cases, both involving the internal cartilage).

FIG. 7.



Both cartilages torn from connexions and greatly displaced inwards (two cases). In one case both cartilages were detached at the anterior extremities, in the other the anterior end of one cartilage remained attached.

remarkable relief excepting in the cases where a loose body accounted for the symptoms.

(*b*) *Rheumatism and gout* (*30*).—Nothing of much practical account arises out of these cases. Those which were undoubtedly influenced by a gouty tendency all commenced after a direct injury; the rheumatic cases followed an indirect injury as a rule; in the gouty instances the skin over the joint showed the usual redness and acute sensitiveness to pressure; the effusion was rapid and excessive; in two instances, had the history of attacks of acute gout in

other joints not been forthcoming, suppuration in the joint might easily have been suspected; indeed, in one case incision was seriously considered and would certainly have been carried out if the gouty history had not been so distinct. In the cases in which rheumatism was clearly a strong factor a cure was, as a rule, effected by the usual constitutional treatment combined with massage. The operations were performed for the relief of acute pain due to tension; incision appeared to possess no advantage over aspiration in the relief of the pain, whilst the healing of the wound was in both cases of incision slow and in one more reaction followed than was quite desirable; in the future, therefore, in such cases I shall be content to aspirate the joint, other means for reducing the tension having failed.

(c) Syphilis (42).—In the cases included in this category the longest period between the original infection of the constitutional disease and the receipt of the injury causing the effusion into the knee was 28 years, the shortest period being three years; in all the syphilis appeared to have been properly treated and to have been "cured." The injury in all the cases was direct and as a rule slight; the right knee as would be expected was much more frequently involved than the left (29 to 13). In no case was permanent benefit derived until a course of antisyphilitic treatment was adopted. In some it was the inveteracy of the condition which led to the searching inquiries which elicited the history of syphilis.

(d) Gonorrhœal rheumatism (28).—All the patients in this class had suffered from "rheumatism" after gonorrhœa within three years but were, so far as they knew, well until the injury started the effusion into the joint; the injuries were in the majority indirect and in each case the affected knee had been concerned in the gonorrhœal infection. In one case in which both knees were injured at the same time, one very severely, the other slightly, the former recovered rapidly and completely, whilst the latter, which had been affected at the time of the gonorrhœa, developed very inveterate recurrent attacks of effusion. In 17 of the cases there was an obvious gleet, although the patients were unaware of the fact. The operations were performed to relieve tension and acute pain. Aspiration effected the object as perfectly as incision, whilst it was less inconvenient, as there was, of course, no wound which required treatment.

(e) Malaria (18).—These cases form an interesting class; the number at first sight seems large but a considerable proportion came under notice during the South African war. In all the cases the patients had suffered from attacks of malaria for some years and in none had any joint affection been noticed until the receipt of an injury causing in the first instance some swelling of the articulation. In the cases classified here, although the joints appeared to have regained the normal condition, succeeding attacks of "fever" were accompanied by effusion into the joint which had been injured. This behaviour of joints under the influence of malaria after injury is new to me, although it may possibly be familiar to those who are more intimately associated with tropical disease. In the case operated upon an incision was made as the extreme tension of the joint and the very high fever suggested the possibility of suppuration. The wound healed kindly.

(f) Hæmophilia (3).—These cases are of no particular interest with the exception of that which was aspirated in which after three attacks of effusion following injury a fourth occurred with so much tension and fever that it became desirable to ascertain the nature of the fluid; it was only upon the withdrawal of a large amount of blood that the diagnosis was made; the joint refilled but not to the extent it had done before the puncture. In none of the cases had there been any other joint involved: in two there was the usual family history; in one (that which was aspirated) no history of hæmophilia was forthcoming.

(g) Quiet effusion in young people (13).—In THE LANCET of Feb. 23rd, 1901, p. 527, I called attention to a passive effusion principally into the knee and ankle joints which is prone to occur in young girls during adolescence if the menstrual arrangements are irregular and especially if they are delayed in their onset. In ordinary circumstances upon the regulation of the catamenia the joint trouble disappears and no further inconvenience arises from it. In the event, however, of any injury being received whilst the quiet effusion is present the symptoms do not always subside with the rectification of the menstrual defect but may give trouble for a considerable time afterwards as a recurrent effusion. Of such a kind are the cases included under this heading. The injury, as a rule, was not severe, but the greatest difficulty in treatment arose when it was direct—e.g., a knock of the knee against the leg of a table.

Taken as a whole I cannot help thinking that this series of 750 cases affords a good deal of useful information, although it has been, of course, impossible, in the time at my disposal, to attempt anything more than a very superficial discussion of some of the obvious points which suggest themselves in connexion with the cases under consideration.

A Clinical Lecture

ON

A SIMPLE METHOD OF SEPARATING AND COLLECTING THE URINE WHICH IS SECRETED BY EACH OF THE TWO KIDNEYS.

Delivered at St. Bartholomew's Hospital,

BY W. BRUCE CLARKE, M.A., M.B. OXON., F.R.C.S. ENG.,

SURGEON TO, AND LECTURER ON SURGERY AT, THE HOSPITAL.

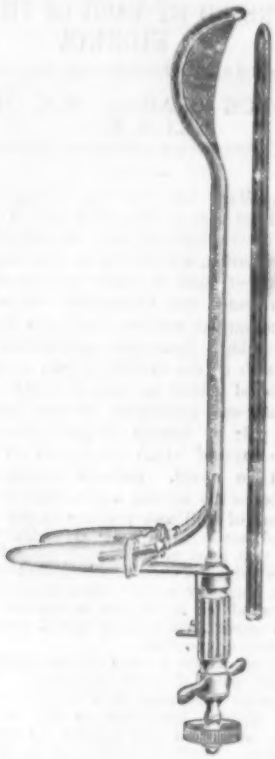
GENTLEMEN,—Many have been the attempts which have been made in times past to discover a method by which the urine of each of the kidneys could be collected and submitted to examination, with a view to ascertain the pathological condition of each of those two organs before any operative interference was attempted. It is needless to recapitulate the various methods that have been tried and so far found wanting. Some years ago methods of blocking the orifices of each of the ureters in turn were resorted to. This was effected either by the pressure of a bag of mercury, which was introduced by the urethra, or by employing a pair of forceps shaped somewhat like a lithotrite by means of which the mouth of each ureter in turn could be seized. Latterly attempts have been made to catheterise the ureters, a procedure which demands no small amount of skill and practice in the operator and even in trained hands is in some cases liable to failure. Small wonder that none of these have come into a general use. A method which is uncertain is worse than useless, for it is liable to engender a false sense of security and has more than once induced a surgeon to operate when, as the operation has proved, his patient should never have been submitted to such a procedure.

The instrument which I have in my hand[1] to-day (see illustration) has none of these objections. It is simple to introduce when reasonable skill is employed, practically infallible in action, innocuous so far as the patient is concerned, and does not require an anæsthetic for its employment. Needless to say, it is simple in construction—every good piece of mechanism is. The Luys separator, for such is its name, converts the bladder for the time being into two halves by means of a vertical septum. Each half of the base of the bladder receives the urine from the corresponding ureter and delivers it by a separate channel into a glass tube on its own side. Thus we can watch the urine flowing from each kidney as easily as if each ureter opened separately on the outside of the body. The instrument consists of two catheters placed side by side. They are fastened together by a screw and can easily be taken apart. Placed between them is a chain, actuated by a screw in the handle. The curve of this instrument is, you will see, more semicircular than that of the ordinary catheter. Before introducing it into the bladder its middle portion, to which the chain is attached, is covered by a thin rubber sheath. As soon as the instrument has reached its destination the handle, which actuates a screw, is turned round and the chain is tightened so that instead

[1] I am indebted to Messrs Arnold and Sons, West Smithfield, for the use of the accompanying block.

of lying in its semicircular groove between the two catheters it is stretched tightly across the semicircle. It forms, in other words, its diameter instead of lying along its circumference. The rubber sheath is by this manœuvre stretched so that it forms a vertical semicircular partition which divides the base of the bladder into two halves and each of these delivers its contents into its corresponding catheter. If slight pressure is exerted on the base of the bladder there is no difficulty in preventing the urine from one kidney from mingling with that of its fellow, in other words, complete intravesical separation is attained.

When the instrument has been introduced the patient is kept in a recumbent position with the pelvis flat on the bed or couch. If he turns on his side it is, of course, obvious that an overflow will be liable to take place from one side of the septum to the other. In some instances it is necessary to carry on one's observations for half an hour, or even more, before a sufficient quantity of urine has been collected to enable one to draw an accurate inference as to the pathological condition of each of the kidneys, but as a general



rule ten minutes are enough. As soon as a sufficient quantity of urine has been collected the handle is unscrewed and the chain drops back into its place, the rubber covering follows suit, and the instrument is withdrawn in the usual way. If you have found any difficulty in following this description this difficulty will at once vanish when you have had the instrument in your hands for a couple of minutes.

There is another form of this instrument in which the septum is formed in a slightly different manner. I need not do more than allude to it. The form to which I have referred is, I believe, simpler and less liable to get out of order. There is only one caution that I would give you with regard to its use. It is a somewhat delicate piece of mechanism and if you wish it to work efficiently see that it is carefully cleaned with a little spirit each time after use and then it will not be liable to get rusty and will always work with that smoothness which is so necessary if accurate results are to be obtained. See also that you are provided with spare rubber sheaths.

If I relate to you some of the cases in which I have employed this instrument you will at once realise how important an aid it is to diagnosis and treatment.

The first instance in which I made use of it was one, as you will see, of obstructive suppression—that is to say, a case in which one kidney had been practically destroyed by a calculus and in which complete obstruction was being threatened owing to the impending blockage of the opposite ureter. Such cases when they are typical are not very difficult to detect but in this instance no history could be obtained of a previous attack of renal colic or any evidence of even the probability of such an attack. The illness from which the patient was suffering had come on suddenly in a man, aged 46 years. He had been seized without warning with violent pain in the region of the left kidney and ureter which had temporarily yielded to fomentations, hot baths, sedatives, and rest in bed. Each time one of these attacks supervened there was an arrest in the secretion of urine, though it could hardly be said to amount to complete suppression. There had been some six or seven attacks in the past three weeks. The longest one had lasted three days and the shortest only a few hours but latterly the pain had invaded both loins. The urine was highly coloured, tinged with blood sometimes, and there was a little pus in the specimen which I examined; it had a specific gravity 1014, gave an acid reaction, and contained a trace of albumin. The day before I saw the patient he had had a severe attack over the region of the right kidney and both loins were tender to touch. His temperature was a little raised and he was evidently ill. Though on the whole it seemed most probable that a stone in the pelvis of the left kidney afforded the clue to his symptoms the recent pain over the right kidney region made the condition of that kidney a matter of considerable doubt. In these circumstances I introduced the separator, and within a few seconds urine began to issue from the left catheter. It was not until nearly half an ounce had come from this side that urine began to issue from the right catheter. In a quarter of an hour quite enough had been collected for purposes of examination and the instrument was withdrawn.

The appearance of the urine from the two sides was absolutely different. That from the right side was small in amount (scarcely more than a teaspoonful) whilst three-quarters of an ounce had come from the left kidney. The examination of the two specimens yielded the following result. The urine from the right kidney was slightly alkaline and contained a little pus and some albumin; that from the left kidney was acid, clear, with not a trace of pus or albumin. It was now established beyond all possibility of doubt that the kidney on the left side was the working kidney and was presumably healthy, though it probably contained a calculus. The right kidney had probably been so damaged by some previous attack as practically to be useless.

An operation was performed a few days later on the left kidney. The stone which I hold in my hand was extracted from its pelvis. A rapid recovery resulted but the urine is still occasionally turbid and alkaline, a condition which the separator demonstrates is produced by the unhealthy urine of the right kidney mixing in the bladder with the healthy urine which flows from the left side. I have suggested that the right kidney should therefore be explored and if necessary removed, for it is not only a useless organ but is liable to infect its neighbour by giving rise to a left-sided ascending pyelitis. So far the patient, who does not realise the danger of the situation, is unwilling to submit himself to a second operation.

The next case in which I employed this instrument was that of a patient in whom one kidney (the left) had been removed some years previously. I was anxious to test for myself the efficacy of the instrument and to make sure that no urine could pass under it from one side of the bladder to the other. Urine issued only from the right catheter and none came from the left side. I was, I confess, surprised to find how difficult it was, even when the separator was loosely inserted, to get any urine to issue from that side of the bladder in which the ureter, if it still existed, was functionless. The ease with which separation was effected was proved beyond doubt.

The third case in which the separator was employed was one of intermittent hydronephrosis. There had been pain on the right side for some years, presumably due to a moveable kidney, which was in consequence stitched up by a surgeon in the country, but the result was

by no means a successful one and when I saw the patient her kidney was undoubtedly fixed, but it was quite low down and almost touched the crest of the ilium. There was in addition a condition of hydronephrosis which she at least attributed to the operation. There was no need to apply the separator to prove the presence of the hydronephrosis, as it was obvious without it. As, however, I had advised an operation for the refixation of the kidney in a higher position and for the relief of the hydronephrosis, I was anxious to have an exact record of the flow of urine both before the operation and subsequently to it and accordingly the separator was introduced with the following result. On two occasions no urine at all passed from the right ureter into the bladder for upwards of half an hour but urine was during the whole of that time freely secreted by the left kidney and voided into the bladder by the left ureter. The separator was introduced on a third occasion, a period being chosen when the right kidney was very fully distended and therefore presumably liable to empty itself. For fully a quarter of an hour no urine came from the right kidney but the left secreted freely. At the end of the quarter of an hour the patient, who was suffering considerable discomfort in consequence of her distended right kidney, moved slightly and at once stated that her pain had been relieved. Within two minutes urine began to issue from the right side in a small but quite continuous stream, two ounces being passed in very little more than five minutes. Meanwhile the left kidney ceased to secrete at all. I was unable to extend the sitting as long as I had wished because the patient was in considerable discomfort notwithstanding that the right kidney was slowly emptying itself, but it was curious to observe that the left kidney did not secrete one drop of urine during the time that the right kidney was emptying itself. The urine which was secreted by the hydronephrotic kidney only contained about 1·2 per cent. of urea—less than half the percentage secreted by the healthy organ.

A few days later the right kidney was explored by me and found to be firmly adherent to the lumbar fascia but much lower down than it should be, as has already been described. After a somewhat tedious dissection it was freed from its bed and refixed as high up in the abdomen as was possible. The pelvis of the kidney was opened and a small bougie was passed right through into the bladder. No stricture or blockage of any kind could be detected and the pelvis was accordingly closed by a catgut suture. The kidney itself appeared to be fairly healthy. The lumbar incision was likewise closed, a small drain being inserted at its lower end in case any leakage should take place. For a few days a slight amount of urine was passed by the wound but by the end of a week the leak had completely ceased and the patient felt perfectly comfortable. The separator was introduced at this period and again five days later. The result was practically the same on both occasions. The urine from the right kidney though slightly lighter in colour than that which flowed from the left side was much the same in amount as that which issued from the opposite kidney. In fact, long before the bandage and dressing were removed from the wound so that the kidney could be palpated, it was easy to determine beyond any possibility of dispute that the result of the operation was entirely successful and the right kidney was secreting nearly 2 per cent. of urea as against 1·2 per cent. before operation. I see no reason to doubt that time will restore the right kidney to a perfectly healthy condition.

One more instance of the use of this instrument. The patient in question was passing pus from time to time with her urine but the symptoms though pointing to the right lumbar region were not sufficiently marked to make it absolutely certain which of the two kidneys was affected. She had been examined by means of a cystoscope but the urine, even after the bladder had been washed out, was too opaque to make the diagnosis a matter of certainty. The separator was introduced, three grains of methylene blue in a pill having been previously administered. The result was a striking one. The left kidney secreted urine naturally. It came away rapidly and evenly and was deeply stained with the methylene blue and healthy in character. A few drops of urine, opaque and purulent in appearance, passed from the right side shortly after the separator was introduced. No more passed for nearly half an hour, when more fluid of the same character was voided. It was tested for urea and found to contain less than ½ per cent. The diagnosis was consequently placed beyond doubt and the right kidney was removed a few days later. It was little more than a bag of pus and contained some caseous material as well. The upper part of the ureter was much thickened and was removed at the same time. A good recovery resulted.

I have selected these striking instances of the value of a Luys separator because they illustrate the importance of the instrument and the kind of information which it is capable of affording us. I could relate many others but I prefer that you should see the instrument itself made use of in the wards and watch the advantageous results which we obtain by its use. By these means you will better appreciate the points I have endeavoured to impress on you in this lecture.

ON THE PATHOLOGY AND TREATMENT OF THE HERNIÆ OF CHILDREN AND THEIR RELATION TO CONDITIONS IN THE ADULT.

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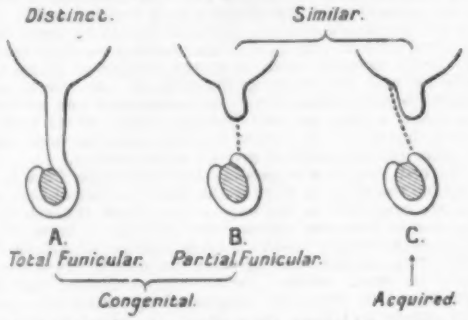
IN THE LANCET of August 20th last[1] there appeared the report of a post-graduate lecture on the subjects indicated in the above heading by Mr. E. M. Corner, a surgeon whose position, while it invests his utterances with the weight of authority, will also render it assured that the views he advances are carefully weighed and founded on a solid scientific basis. It is therefore with no little astonishment that I discovered that the conclusions to which Mr. Corner has been drawn by his experience of hernia in childhood are so diametrically opposed to those at which I and many others have arrived as to be hopelessly irreconcileable. My own views on this subject have been very amply set forth in a series of articles which have appeared in this journal during the last five years;[2] these Mr. Corner has either not read, or having perhaps read them he has deemed them unconvincing and has rightly dismissed them. Nevertheless, the fact remains that either I, and many others who think with me, are totally mistaken, or Mr. Corner is; there is no possible compromise, and it is of the utmost importance that an endeavour should be made to ascertain with which side the truth lies, a view with which I am sure no one will more cordially agree than he. I ask, therefore, permission to state once again, as concisely and as courteously as possible, not merely my opinions, which are of no value, but the



The dotted lines in B and C indicate the obliterated portion of the funicular process.

evidence on which those opinions have been built up; evidence which it is open to all surgeons to test for themselves and which I believe to be unimpeachable in its conclusiveness.

The issues are very definite and are easily stated. All authors, until quite recently, have agreed that inguinal hernia in childhood may be (1) *congenital*, dependent on total patency of the processus vaginalis; (2) *funicular*,

[1] THE LANCET, August 20th, 1904, p. 511.
[2] THE LANCET, Nov. 18th, 1899, p. 1353; Oct. 20th, 1900, p. 1123 May 31st, 1902, p. 1519 and March 12th, 1904, p. 707.

dependent on partial patency of the processus vaginalis; and (3) *acquired*, not dependent on the processus vaginalis at all but caused by incompetence of the abdominal wall. The characters of these three varieties are shown in the accompanying diagram. I have substituted for the careless and inexact terms of common usage, "congenital" and "funicular," my own nomenclature of "total funicular" and "partial funicular" respectively, for reasons which are obvious and which have been already explained at length in these columns on two previous occasions.[3] Now it will be noted that while the first two forms A and B are etiologically identical, being both congenital, C differs from them in being recent or acquired. Curiously, however, A and B, the two congenital forms, present so marked a contrast one from the other that the tyro could never fail to distinguish them, while, on the other hand, B and C, which have nothing in common in point of origin, are yet so much alike as virtually to be indistinguishable from one another. And now the question at issue emerges very clearly; it is as follows. Mr. Corner, on the one hand, places all the herniæ of childhood in which the sac is distinct from the tunica vaginalis in the category of the acquired (C). I, on the other hand, place them all in the category of the partial funicular (B) and deny the existence of the acquired (C). I find myself in somewhat of a difficulty through the fact that Mr. Corner has made no reference at all to Class B. I presume this is only the result of an inadvertence and I shall assume that the existence of such a class is admitted by him, in addition to the acquired (C). This circumstance, however, does not affect the real point at issue, which turns solely upon the question of the existence or non-existence of acquired hernia (C) in children; and I would point out that the answer we give to this question is not a mere matter of academic or pathological interest, it is the most important question with regard to hernia from a practical standpoint that can be advanced for debate: I will go further and say that it is the *only* question of supreme moment that the subject in its elementary form presents. The reason of its predominating importance is this. The large majority of herniæ in children admittedly have a sac which is quite distinct from the tunica vaginalis and all such must belong to either (B) the partial funicular (congenital origin) or (C) the acquired (of non-congenital origin). But how are they to be distinguished individually? It obviously cannot be done and nobody has ever suggested any method of doing it. Now it stands to reason that if in operating on any individual case of hernia the surgeon is unable to tell whether it is of congenital origin belonging to Class B or whether it is of acquired origin and due to defect of the abdominal wall and, as such, belonging to Class C, he is in the position of being virtually in complete ignorance of the etiology and nature of the affection he is treating and it is therefore impossible that his procedure should be based on any sound rational principle. This startling corollary from the usually accepted views as to the etiology of hernia is inevitable and the resulting disability to our efforts at precise scientific treatment will be irremediable and permanent unless a close and well-directed scrutiny of the whole subject should make it evident that the accepted views are defective and susceptible of revision and alteration.

The first very simple question that will arise from the foregoing statement is this: if the large number of herniæ that are comprised in the two groups B and C are indistinguishable from one another what evidence is there that both groups actually exist? Why do they not all belong to either B on the one hand or C on the other? There must surely be some evidence forthcoming—evidence that is independent of the mere naked-eye appearance—to show that certain individual cases must be relegated to the category of Class B while others, with equal certainty, must be classed under C. Nothing of the kind! The evidence demonstrating the funicular origin of individual herniæ proving them to belong to Class B is abundant and constantly recurring. On the other hand, concerning Class C, amazing as the statement may seem, no particle of evidence, direct or indirect, has to my knowledge ever been adduced to show that any single case of hernia in a child should be placed in that category. The existence of acquired hernia in childhood has been entirely taken for granted; it has been the purest assumption from beginning to end.

Now I am aware that this last statement is of the nature of negative evidence and I quite recognise that even though no evidence has ever been adduced in favour of the acquired origin of hernia that does not prove that none ever will be or that hernia may not be acquired. We need not, however, be concerned with any question as to the value of negative evidence, for the positive evidence in support of my position is abundant and conclusive. There is one test which, if equally applied to all cases of hernia in childhood may, I presume, be trusted to distinguish between those of congenital origin (B) and those of acquired origin (C) and that is simple removal of the entire sac by operation. I imagine it will be conceded that if in a case of hernia resulting from incompetence of the abdominal wall (acquired hernia, Class C) the peritoneal sac be simply ligatured and removed and nothing be done to repair the supposed defect in the walls of the inguinal canal, the operation must of necessity prove futile and the hernia will recur; and conversely, if after such simple operation as I have described the hernia does not recur we may, *ipso facto*, conclude that the hernia in question was not due to any defect in the abdominal wall and therefore cannot be classed as an acquired hernia (C). In the course of the last eight years I have performed the operation for inguinal hernia in young children 143 times (with two deaths). I have not systematically endeavoured to trace all these cases with a view to publish statistics in this paper, because for a variety of reasons that course could hardly strengthen the evidence. Suffice it to say that for several years past no other operation than the simple one I have mentioned has been performed by my former colleagues at the Melbourne Children's Hospital and the result of their experience has been to verify the statement I made five years ago that in the inguinal hernia of childhood if the sac be completely removed recurrence will not take place. In actual practice it is exceedingly probable that an occasional recurrence will be met with, because all operators are not equally experienced and skilful and the operation varies in point of difficulty and is always difficult for a beginner, but, as I shall point out directly, the fact of occasional recurrence does not invalidate my contention as to the etiology of hernia. As regards my own series the bulk of my patients were operated upon prior to three years ago, when my work at the Children's Hospital ceased. Of these cases only one, to my knowledge, recurred. In this case the hernia reappeared about four months after the operation and was evidently due to incomplete removal of the sac, for a second operation performed with perhaps more thoroughness 18 months ago has not been followed by recurrence. These 143 cases, I may remark, were the result of no process of selection; they represent the total number of the cases of hernia in childhood that came under my care during the period named. In no case with the exception of a few very young infants was a truss advised. All cases were subjected to operation, virtually without discrimination.

It is perfectly clear that whatever view we may take as to elaborate operations based on the principle of closing the canal in order to prevent hernia no difficulty or doubt is possible as to the deduction we are permitted to make from so simple an operation as this. It is self evident that if as the result of operation the hernia does not recur the cause of the hernia must have been removed; and if the operation has consisted solely in removal of the sac, then the sac must have been the cause of the hernia in every case; and these will therefore all belong to Class B. On the other hand, the fact of recurrence after operation will not necessarily prove that the case in question was an acquired hernia (C), because recurrence will also take place after operation on the congenital form (B) provided the removal of the sac be incompletely carried out. In brief, when simple removal of the sac has been performed for hernia, non-recurrence will prove that the case was of congenital origin (B); but recurrence will *not* prove that it was of acquired origin (C). If now by the light of this reasoning we take a large number of cases of hernia in young children treated by simple removal of the sac, and we find that recurrence is only an excessively rare event, we shall surely arrive at the conclusion that to prove any single one of those cases to have been of acquired origin will at least demand evidence of the most stringent and incontrovertible nature, such as I am unable to conceive, and such as certainly has never to my knowledge been even suggested.

Difficult to combat as this evidence is it is by no means the only evidence I am able to bring forward in support of my contention that the inguinal sac in children is invariably congenital—i.e., either total or partial funicular. If any

[3] THE LANCET, Nov. 19th, 1899, p. 1353, and March 12th, 1904, p. 707.

man who has the opportunity of frequently removing hernial sacs from children will make a point of inspecting them with critical eyes, both during and after removal, he will very quickly acquire the power of frequently recognising certain appearances that proclaim their nature with as much facility and precision as that with which the shepherd is enabled to distinguish the characteristic faces of his flock. I have on former occasions gone into this question with minuteness; suffice it to mention here that he will find all sorts of variable characters that could not be produced in an acquired sac, such as bilocular or multilocular sacs, sacs with marked sacculations and with occasionally a sacculus closed over forming a cyst, sacs showing imperfect division into one or more segments, sacs imperfectly closed at the end, and so on. It is rare for me to remove a hernial sac without being able to point out to onlookers after its removal the characters that indicate its congenital origin. I may mention incidentally that the sacculation I refer to here should not be confused with the sacculation that is observed in the case of a genuinely acquired hernial sac, as in ventral hernia occurring in the seat of an operation wound. In the latter case the irregular outline of the sac is due to its having had to force its way through a maze of cicatricial tissue and the most casual observer will see at once that there is no true similarity between the two things.

Thus I hold it proved that so long as we employ a method of reasoning by sound induction the evidence will be all on one side and yet there will be many who are not yet convinced. It is worth while to digress for a moment to seek an explanation of the reason for this mental attitude with regard to hernia. If we were to be asked to state our conception of the origin of hernia in a general and elementary way we should probably do it somewhat in this wise: "In the normal state there are two opposing forces at work; on the one hand the intra-abdominal pressure, on the other hand the retentive power of the abdominal walls; in this contest so long as the retentive power holds its own there will be no hernia, but when the intra-abdominal pressure overcomes the retentive power at any one point hernia results." Fair as this statement may seem, there is an implied fallacy, for it distinctly creates the impression that there must be some sort of equality between the two opposed forces, whereas the truth is that the preponderance in strength of the retentive power of the abdomen over the intra-abdominal pressure is so enormous that the part which this latter force *assisted* could be capable of playing in the production of hernia may be set down as a *quantité négligeable*. This is a matter that does not appear to lend itself very readily to physiological experiment but ordinary observation will afford much instructive and suggestive information. It shows, for one thing, that in the ordinary quiescent state of the abdomen the interior pressure is to all intents and purposes *nil*, while it is only during effort that it can be said to exist at all, and even then the rise of the intra-abdominal pressure is trifling in comparison to the muscular effort expended. Take a case of undoubted acquired hernia—viz., that form of hernia that occurs after abdominal operations, where the abdominal wall has been left open for drainage, as in cases of appendicitic abscess. Here, in a region very close to the inguinal region, we see an area from which the support of the three strong muscles is taken away, with the substitution merely of a thin layer of cicatricial tissue. And yet so feeble is the intra-abdominal pressure that the occurrence of protrusion is a process that extends over months. Could any better illustration be offered to show the enormous preponderance of the retentive power of the abdomen over the feeble intra-abdominal pressure? It may, however, be urged that the inguinal region and the appendix region are very different, which is true; but can it for a moment be suggested that the inguinal region is constructed in a manner so extraordinarily feeble as to reduce it to anything like the low level of retentive efficiency possessed by the web of cicatricial tissue in the appendix region? Again, there is no more striking illustration of this point than is provided by the subject under discussion. The presence of a peritoneal sac is, of course, ruinous to the retentive efficiency of the abdominal wall at that spot. Were the balance between the intra-abdominal pressure and the retentive power under normal conditions at all lightly held the presence of a peritoneal sac would mean hernia inevitably. That it does not do so is attributable to the fact that the efficiency of the abdominal musculature is so much in excess of the requirements that it may often be enabled to prevent the descent of hernia in spite of the presence of a sac. In this fact lies the very obvious explanation of the so-called curing of hernia by means of a truss, a perfectly simple and intelligible phenomenon, absolutely innocent of any excuse for the mystery that is often thrown around it.

As has been formerly pointed out, not only is the inguinal region not weak, but such is the construction of the canal by virtue of the sphincteric mechanism of the arched fibres that the very effort which is required to create an intra-abdominal pressure calls forth a commensurately increased resistance in the inguinal region.[4] Let us, however, in spite of all this, assume, for the sake of argument, that the intra-abdominal pressure could conceivably produce an acquired hernia. Where would the hernia appear? Clearly at the weakest spot in the abdomen. Now the femoral ring differs from the inguinal canal in being completely devoid of any protecting mechanism. It is a ring with rigid walls, a genuine "opening," which the inguinal canal is not; and it is devoid of any protecting musculature such as is owned by the inguinal canal. It would appear almost to have been designed specially in order that hernia might descend into it. There is no comparison whatever between the inguinal and femoral regions in regard to their capacity respectively for resisting the pressure from within. Now if the view which has been put forward associating hernia in children with distension from dyspepsia were correct, it would necessarily follow, first, that the number of femoral herniæ would preponderate largely over inguinal; secondly, and still more remarkable, that when inguinal hernia did occur it would always be preceded by, or at least associated with, a femoral or two femoral herniæ. There is no escape from this simple deduction, but how utterly it is negatived by clinical experience I need not say. Moreover, I can find not the slightest reason for believing, either from my own experience or the experience of members of the staff of the Children's Hospital, that there is even the most visionary association between the dietetic troubles of childhood and hernia. This section of the discussion may be briefly summed up thus: Seeing that the inguinal region is far more strongly fortified against the occurrence of acquired hernia than the femoral region, it is inconceivable that acquired inguinal hernia should occur without an associated femoral hernia; and conversely, when inguinal hernia appears, while the femoral regions remain intact, the inguinal hernia cannot be of the acquired type and can only be due to the presence of a congenital sac. This is tantamount to saying that acquired inguinal hernia does not exist. The case of femoral hernia, however, has not been disposed of; I am again conscious that, if I have to admit that femoral hernia can be, and is, acquired, although inguinal hernia cannot be, I shall fail to convince. The two affections are so closely allied and so very similar that most thinking men would have doubts as to the soundness of my conclusions. There would be inherent improbability in the view that an agency which was causative in one should really be incapable of producing the other, no matter how conclusive the reasoning might seem to be. On investigation, however, the difficulty disappears. There is abundant evidence that femoral hernia, too, is always congenital and never acquired, and that the sac is a congenital diverticulum from the primitive pleuro-peritoneal cavity. I do not propose to traverse afresh ground which has already been trodden upon two previous occasions in these columns[5]; suffice it to say that the evidence in favour of the congenital origin of the femoral sac appears to me as conclusive and satisfactory as that which relates to inguinal hernia.

Finally, a most important generalisation. If we conclude that neither inguinal nor femoral hernia is ever acquired and that the intra-abdominal pressure is far too feeble an agency to produce hernia in either of those situations, it would seem that the theory of acquired hernia may be dismissed altogether, for it must be admitted that our observations on inguinal and femoral hernia will cover the cases of the rarer forms of abdominal hernia—e.g., the obturator, ischiatic, hernia into the triangle of Petit, &c. We therefore regard the term "acquired" as being appropriate to the traumatic form alone; whereas all ordinary forms of abdominal hernia we regard as congenital in origin and dependent on the presence of a developmental diverticulum

[4] THE LANCET, Nov. 18th, 1899, p. 1353.
[5] THE LANCET, May 31st, 1902, p. 1519, and March 12th, 1904, p. 707.

from the primitive pleuro-peritoneal cavity, which in the inguinal canal alone appears to be constant and to serve a purpose and to merit a special name. The relationship existing between the hernia of childhood and that of adult life is a matter into which I will not now enter at any length. I will merely observe that some years of work at the Melbourne Children's Hospital led me to the views on hernia in childhood which I have expressed above, views which have been confirmed and strengthened by increased experience and by the concurrence not only of my former colleagues and many surgeons in this country but also of able observers elsewhere.[6] Three years ago my sphere of work was suddenly transferred to a large general hospital where numerous opportunities have been afforded me of operating on adults. As a practised operator on children I at once looked, and have continued to look, closely for evidences of some distinguishing features between the hernia of adult life and that of childhood. I have found not the slightest evidence of any *etiological* difference. In adult life some modifications are presented which I may term incidental, due to long duration, &c. The operation invariably performed is, *in principle*, identical with that which I perform in children, but with certain differences in technique; and the results will, I believe, also prove to be substantially identical. This, however, is a matter that merits more detailed treatment than can be accorded to it here.

In an early part of this paper I pointed out the hopeless disability under which operators must of necessity be condemned to labour if it be true that inguinal hernia may be either congenital or acquired, and I would point out that a precisely similar disability has afflicted writers on hernia with an even more paralysing effect. It is notorious that the subject has always presented many difficulties and inconsistencies to which we have allowed ourselves to become resigned as inexplicable. In text-book accounts authors have been driven irresistibly to the alternative courses of either silently evading difficulties or admitting their inability to explain them. This will continue to be so until authors recognise that the fundamental statement with which they usually open their articles, to the effect that "hernia may be either congenital or acquired," is completely erroneous; that it is an error, moreover, which must of necessity foil all attempts to harmonise the multitudinous aspects and phenomena presented by the affection.

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THE INFLUENCE OF RAINY WINDS ON PHTHISIS.

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IN earlier papers I have shown that in Devonshire the mortality from phthisis is much greater in those districts which are exposed to the prevalent strong rainy winds than in those which are sheltered from them and that these winds are injurious to phthisical patients.[1] In the present paper I propose to show, first, that in many countries exposure to prevalent strong rainy winds is accompanied by increased phthisis mortality; secondly, that in the most successful health resorts for phthisis strong rainy winds are not prevalent; and, thirdly, that the influence of these rainy winds on the prevalence of phthisis is more powerful than that of any other influence except marked difference of race and, in some communities, of occupation.

PART I.—PREVALENT STRONG RAINY WINDS AND PHTHISIS MORTALITY.

Since great differences exist in the condition of wind and rain in different belts of latitude the following regions will be separately considered: A, Northern region of westerly winds—N. of 30° N.; B, southern region of westerly winds—S. of 30° S.; C, region of the north-east trade winds; D, region of the south-east trade winds; E, so-called equatorial calm belt; F, so-called calm belt of Cancer; and G, so-called calm belt of Capricorn. The Faröes, the Falklands and Iceland will be considered separately last.

A. *Northern Region of Westerly Winds.*

England.—The prevailing rainy winds are south-westerly, westerly, and north-westerly. Davidson's account of the phthisis distribution may be summarised thus (see Table I.).[2]

TABLE I.—*Average Death-rates per 1000 from Phthisis in the Counties of England for the Ten Years 1871–80 arranged in Ascending Order.*

Rutlandshire	1·42	Huntingdonshire	1·93
Worcestershire	1·48	Durham	1·93
Herefordshire	1·52	Norfolk	1·94
Staffordshire	1·60	Warwickshire	1·96
Shropshire	1·64	Nottinghamshire	1·96
Somersetshire	1·65	East Riding	1·97
Buckinghamshire	1·69	Cambridgeshire	1·99
Lincolnshire	1·69	Cheshire	2·01
North Riding	1·69	Suffolk	2·02
Dorsetshire	1·73	Westmorland	2·03
Wiltshire	1·74	Sussex	2·06
Hertfordshire	1·75	Devonshire	2·07
Leicestershire	1·77	Bedfordshire	2·12
Middlesex (extra met.)	1·78	Cornwall	2·20
Monmouthshire	1·79	Hampshire	2·20
Gloucestershire	1·81	Cumberland	2·20
Kent (extra met.)	1·83	West Riding	2·26
Essex	1·83	Northumberland	2·27
Northamptonshire	1·86	Lancashire	2·47
Oxfordshire	1·88	London	2·51
Derbyshire	1·90	South Wales	2·54
Surrey (extra met.)	1·91	North Wales	2·57
Berkshire	1·92		

For the ten years 1871 to 1880 the region of maximum prevalence of phthisis stretched along the western side of the country from Cumberland to Cornwall, extending into Northumberland, whilst the minimum prevalence was found in the counties of Rutland, Worcester, Hereford, Stafford, and Shropshire. The low death-rates of these latter five counties could not be explained on the ground of sparseness of population or of agricultural occupation; in Rutland where phthisis was least prevalent the acreage per person was the same as in North Wales where phthisis was most prevalent; in Staffordshire, in spite of its potteries, the mortality was less than in Bedfordshire which was purely agricultural. In Cornwall tin-mining, in Lancashire and the West Riding cotton and woollen manufacturing, and in North Wales slate-, copper-, and lead-mining doubtless increased the mortality from the disease but in Wales generally injurious industries did not account for its high death-rates since these were nearly as great in districts where there were no injurious occupations. Davidson thought that soil largely determined the differences in the death-rates of the agricultural counties. But he summed up thus: "It ..... appears that no complete explanation can be given of the geographical distribution of phthisis in England. We have here to recognise the existence of a zone similar to that which is observed in the Rhine Provinces of Germany and at certain altitudes in Switzerland in which phthisis, for reasons not yet understood, attains a high degree of prevalence." Now if we exclude Northumberland, the high phthisis death-rate of which is doubtless due largely to its industries and its crowded towns, the distribution of phthisis in England from 1871 to 1880 was very much what it should be if exposure to rainy wind is taken into consideration. The western counties are the most exposed and have the highest death-rate. Rutland, which is sheltered, Worcester, Hereford, Stafford, and Shropshire, which are perhaps the most sheltered counties from all westerly winds, have the lowest death-rates. This distribution of phthisis is well seen by an inspection of the averages of the phthisis death-rates in three successive decennial periods—viz., 1861–70, 1871–80, and 1881–90. As the high death-rate in Wales might be thought to be due to race, Table II. is

[6] Stiles: Brit. Med. Jour., vol. ii., 1901, p. 599. Deanesley: Ibid., vol. i., 1903, p. 1467. Sheen: Ibid., vol. ii., 1904, p. 60.

[1] Wind Exposure and Phthisis, Transactions of the Royal Medical and Chirurgical Society, vol. lxxxiv., p. 29. Wet Winds and Phthisis, Transactions of the British Congress on Tuberculosis, vol. ii., p. 524. The Influence of Wind on Phthisis, Brit. Med. Jour., May 23rd, 1903.

[2] Davidson: Geographical Pathology, vol. i., pp. 126–28.

appended, showing that within Wales itself the death-rate is heavier in the districts exposed to westerly winds.

TABLE II.—*Average Death-rates per 1000 from Phthisis in the Registration Districts of Wales, 1881–90, exposed and sheltered as regards Westerly Winds.*

Exposed.		Exposure to—	Sheltered.	
Gower	1·68	W., S.W.	Crickhowell	1·33
Conway	1·69	W.	Pontypridd	1·38
Bridgend	1·74	N.W.	Forden	1·42
Holywell	1·78	N.W.	Wrexham	1·46
Pembroke	1·93	N.W., W., S.W.	Hay	1·47
Ruthin	1·94	N.W.	Knighton	1·65
Lampeter	1·96	N.W., W., S.W.	Llanfyllin	1·82
Dolgelly	2·01	W., S.W.	Corwen	1·86
Llanelly	2·04	S.W.	Swansea	1·86
Neath	2·06	S.W.	Cardiff	1·87
Pwllheli	2·06	N.W., W., S.W.	Bala	1·88
St. Asaph	2·09	N.W.	Brecknock	1·95
Haverfordwest	2·14	N.W., W., S.W.	Newtown	2·04
Llanrwst	2·22	N.W.	Merthyr Tydvil	2·05
Holyhead	2·24	N.W., W., S.W.	Builth	2·10
Anglesey	2·32	N.W., W., S.W.?	Rhayader	2·16
Llandovery	2·39	W.		
Festiniog	2·51	S.W.		
Bangor	2·52	N.W., W., S.W.		
Pontardawe	2·57	W., S.W.		
Aberayron	2·67	N.W., W.		
Machynlleth	2·68	W., S.W.		
Cardigan	2·69	N.W., W.		
Llandilofawr	2·74	S.W.		
Carmarthen	2·76	S.W.		
Tregaron	2·80	W., S.W.		
Narberth	2·90	N.W., W., S.W.		
Aberystwith	2·90	N.W., W.		
Newcastle-Emlyn	2·92	N.W., W., S.W.		
Carnarvon	2·96	N.W., W., S.W.		
Average	2·33	—	Average	1·76

Scotland.—Here, again, the prevalent rainy winds are south-westerly, westerly, and north-westerly. If the table of death-rates from phthisis in the Scotch counties for the ten years from 1881 to 1890 be examined (see Table III.) it will be seen

TABLE III.—*Average Death-rates per 1000 from Phthisis in the Counties of Scotland for the Ten Years 1881-90, arranged in Ascending Order.*

Kinross	1·0	Perth	1·7
Nairn	1·1	Roxburgh	1·7
Inverness	1·2	Shetland	1·8
Ross and Cromarty	1·3	Elgin	1·8
Banff	1·3	Dumbarton	1·9
Kincardine	1·3	Argyll	1·9
Berwick	1·3	Edinburgh	1·9
Orkney	1·4	Wigtown	1·9
Caithness	1·4	Ayr	2·0
Aberdeen	1·4	Forfar	2·1
Haddington	1·4	Dumfries	2·1
Peebles	1·4	Kirkcudbright	2·1
Sutherland	1·5	Bute	2·2
Linlithgow	1·5	Selkirk	2·2
Fife	1·6	Lanark	2·4
Clackmannan	1·6	Renfrew	2·5
Stirling	1·6		

The figures are taken from the Registrar-General's returns.

that the two lowest death-rates are in Kinross and Nairn, both well sheltered from the rainy winds; that, except Elgin, Forfar, and Edinburgh (of which the first is open to the north-west, whilst the other two contain very populous towns), the eastern counties have relatively low death-rates, whilst the western counties, as far north as Argyll, have all relatively high death-rates. North of Argyll, on the west, the counties either run across from east to west or, like Inverness, include great inland areas with marked local shelter and therefore can scarcely be used for comparison. Of the western counties with high death-rates it must, however, be remembered that Renfrew includes part of Glasgow.

Ireland.—The configuration of the country makes its relative shelters and exposures to the south-westerly, westerly, and north-westerly, the prevalent rainy, winds extremely difficult to assess. The rainfall, too, does not decrease from west to east in the regular way it does in Great Britain.[2] Also the most populous and industrial centres are on or near the eastern coast. Perhaps, in view of the greater ease of comparing their shelters and exposures, a comparison of urban districts may give more definite results than a comparison of wider areas. Ten years' records are available for 16 such districts. (See Table IV.) Of the two great popu-

TABLE IV.—*Average Death-rates per 1000 from Phthisis in Dublin and the 15 Principal Urban Districts of Ireland, of which Records are available from 1895 to 1902, arranged in Ascending Order.*

—	Mean population.	Average death-rate.	—	Mean population.	Average death-rate.
Drogheda	12,316	1·6	Londonderry	36,964	2·7
Dundalk	12,762	1·8	Belfast	361,901	2·9
Kilkenny	10,828	2·1	Waterford	23,810	2·9
Newry	12,683	2·2	Lurgan	11,605	3·0
Armagh	7,513	2·2	Limerick	37,653	3·0
Sligo	10,572	2·5	Dublin	364,294	3·2
Wexford	11,356	2·6	Lisburn	11,855	3·3
Galway	13,613	2·6	Cork	75,733	3·8

lations of Dublin and Belfast, Dublin, most open to the rainy winds, although less industrial than Belfast, has the higher death-rate. Of the other towns those with the lowest death-rates, Drogheda, Dundalk, Kilkenny, Newry, and Armagh, are all in the eastern part of the island and more or less sheltered from the rainy winds. Lurgan and

TABLE V.—*Death-rates per 1000 from Phthisis in the Counties of Norway.*

Name of county.	1898	1899	1900	Average 1898–1900	1901
Kristiana	1·5	1·9	1·7	1·7	1·1
North Bergenhus	1·9	1·8	2·4	2·0	1·4
Hedemarken	1·9	2·3	2·4	2·2	1·7
Nordland	2·0	2·5	2·2	2·2	1·3
South Bergenhus	2·3	2·3	2·5	2·4	1·7
Smaalenene	2·7	2·6	2·6	2·6	1·9
North Trondhjem	2·9	2·5	2·5	2·6	1·7
Akershus	2·8	2·5	2·6	2·7	1·8
Jarlsberg	2·9	2·9	2·3	2·7	2·1
Buskerud	2·8	2·8	2·7	2·8	2·0
Romsdal	2·8	3·0	2·7	2·8	1·9
Bratsberg	2·8	2·7	3·2	2·9	2·4
Bergen, City	2·6	2·9	3·1	2·9	2·3
Tromsoe	2·9	2·9	2·9	2·9	1·4
Kristiana, City	3·1	3·1	3·0	3·1	1·4
Finmarken	3·2	3·2	3·1	3·1	2·0
Nedenes	3·1	3·4	3·0	3·2	2·4
Stavanger	3·1	3·4	3·2	3·3	2·4
South Trondhjem	3·1	3·7	3·7	3·5	2·2
Lister and Mandal	4·4	4·5	4·5	4·5	2·4

Figures kindly sent me by Dr. M. Holmboe, director of the Medical Service of Norway.

Lisburn, although in the eastern counties, have a high death-rate, but they are by no means sheltered and are great linen-manufacturing centres. In spite, therefore, of the peculiar

[2] See Bartholomew's Atlas of Meteorology, edited by Dr. A. Buchan F.R.S., Plate xxiii.

difficulty of an inquiry into the influence of rainy wind on phthisis in Ireland, indications are not wanting that exposure to rainy wind and relatively high phthisis death-rate tend to correspond.

Norway.—The prevalent strong rainy winds of Norway are the south-west, west, and north-west. On the south and south-east coasts the south and south-east winds are also rainy.[4] The greatest mortality from phthisis (see Table V.) is found in the south-western counties where the fiords and valleys afford ready access to the south-west, south, and south-east winds. Of the only other counties with heavy mortality South Trondhjem appears to afford exceptionally easy access to the north-west wind, but of Finmarken I have too little information to speak. The counties protected from sea gales, either by the narrowness of their winding fiords or by their inland position, suffer least from the disease.

Sweden.—The position and surface of Sweden make the inquiry in that country difficult and I have no very recent figures. Davidson says that in 1886 and 1887 phthisis was more fatal in the centre and south than in the north and was most fatal between 58° and 60° N.[5] This is the region of the lakes and is the part most open to rainy winds from the Atlantic.[6] The figures given by Davidson, however, relate only to towns. (See Table VI.)

TABLE VI.—*Death-rates per 1000 from Phthisis in Towns of Sweden, 1886 and 1887.*

—	Number of towns.	Population, 1886.	Death-rate, 1886.	Death-rate, 1887.	Mean
North of Lat. 62°	7	31,050	2·93	2·38	2·65
Between Lat. 62° and 60°	5	43,150	2·68	2·44	2·56
Between Lat. 60° and 58°	9	99,509	3·33	3·03	3·18
South of Lat. 58°	8	214,798	2·81	2·86	2·84

From Davidson's Geographical Pathology, vol. i., p. 40.

Denmark.—A map for which I have to thank the kindness of Dr. Rördam, illustrating the phthisis death-rates in the towns, shows that a line drawn along the north-west coast of Europe and produced so as to cross Denmark divides it into a northern area in which the prevalent south-west wind is a sea wind and therefore relatively rainy, and a southern area in which the south-west wind is a land wind and therefore relatively dry.[7] All the highest death-rates, except that of the capital, lie north of this line, and the only low mortalities north of the line are seemingly under shelter of the east coast. Also, as the rainfall lessens from west to east the phthisis mortality in the towns also decreases from west to east.[8]

Germany.—The chief rainy winds of Germany are south-westerly, westerly, and north-westerly. Most rain falls in June, July, and August, during which the north-west wind becomes relatively common.[9] Schlockow has shown[10] that tuberculosis is much more fatal in the western than in the eastern provinces, the high mortality in the lower Rhine towns being specially remarkable, and Hirsch points out that this cannot be explained as due to hurtful industries because the smaller rural districts in the western provinces show a very high death-rate. Davidson says:[11] "Whatever may be the explanation, the distribution area of phthisis in Germany is in a marked degree determined by longitude." Schlockow's figures (see Table VII.) for the rural populations of the Prussian provinces are all the better for the present purpose that they refer to the years 1875 to 1879, before the conflicting influences of growing industries with increasing wages in some provinces and of special precautions against phthisis, in the same provinces or in others, came into operation. When these figures are looked at it becomes instantly apparent that the provinces most exposed to the prevalent rainy winds suffer most from phthisis.

TABLE VII.—*Average Death-rates per 1000 from Phthisis in the Rural Populations of the Provinces of Prussia for the Years 1875 to 1879 (Schlockow):—*

Baltic Provinces.		*North Sea.*	
Gumbinnen	1·94	Hanover	4·44
Königsberg	1·45	Hildesheim	3·21
Dantzig	1·41	Lunenburg	3·29
Marienwerder	1·35	Stade	4·20
Stettin	2·08	Osnabruck	5·22
Koslin	1·60	Aurich	3·79
Stralsund	2·12	*Lower Rhine.*	
Schleswig	3·18	Cöln	5·34
Warta and Oder.		Troves	3·56
Posen	2·04	Aix	4·59
Bromberg	1·95	Coblenz	4·35
Breslau	2·75	Düsseldorf	5·29
Liegnitz	2·35	Münster	4·70
Oppeln	2·45	Minden	4·90
Frankfurt	2·25	Arnsberg	4·51
Prussia, Saxony, and the Mark.		*Upper Rhine.*	
Potsdam	2·33	Cassel	3·03
Magdeburg	2·65	Wiesbaden	4·08
Merseburg	2·6		
Erfurt	2·70		

These figures are taken from Hirsch's Geographical and Historical Pathology.

Switzerland.—The rainy winds of Mid-Europe are the south-westerly, westerly, and north-westerly.[12] Parts of Switzerland must also get rainy south-east winds from the Adriatic.[13] The mountain ramparts of Switzerland shut out these winds except at certain points and therefore the assessment of shelter and exposure to rain-bearing winds in Switzerland becomes difficult. Moreover, the winds as they sweep over the maze of mountain and valley must obviously bend and interlace in a confusing manner. Also, since the prevalent wind on the Rigi appears sometimes to be north-west when that on the loftier Säntis is south-west,[14] it seems likely that the warmer southern currents float over cooler northern currents. Therefore every district requires a specially careful investigation. Thanks to the kindness of Dr. W. R. Huggard, who lent me his valuable maps of the Grisons,[15] I have been able to examine that canton in detail. I have also travelled over most of it. The result, which I shall deal with more fully presently, shows almost everywhere that complete exposure to rainy winds corresponds with a relatively high mortality from phthisis.

France.—In the recent report of the French Tuberculosis Commission Professor Brouardel states that there are three chief centres of tuberculosis in France[16]—viz., (1) Paris and the neighbouring departments extending through the north-east corner of France; (2) Brittany with Mayenne; and (3) from Doubs through Lyons to Gard. The method by which the figures for the departments have been obtained is, as Professor Brouardel points out, crude,[17] but he evidently considers this broad conclusion correct nevertheless. The rainy winds of France, west and north-west of the Cevennes, are from the Atlantic, therefore westerly and north-westerly everywhere. In the north-west and north of France, south-west winds must be also rainy, but from the south-west departments and the centre of France, Spain and the Pyrenees cut off the rain from this quarter. South and south-east of the Cevennes, according to Hann, belongs climatologically to the Mediterranean countries,[18] and gets rainy winds from the south-south-west, south, and south-east. The higher altitudes of the French Alps, however, must still get rain from westerly Atlantic winds. When these relations of the rainy winds are borne in mind Professor Brouardel's three centres can, I venture to think, be roughly accounted for.

[4] Hann: Handbuch der Klimatologie, vol. i., p. 354, and vol. iii. pp. 139–44. Bartholomew's Atlas of Meteorology, Plate xii. Longman's Gazetteer of the World, 1895. Baedeker's Norway and Sweden, p. 37.
[5] Op. cit., vol. i., p. 40.
[6] See Bartholomew's Atlas of Meteorology, Plates xii. and xxi.
[7] See also the Climate of Denmark, by Adam Paulsen, Chicago Meteorological Congress, Part III.
[8] See Plates xxviii.–xxxi., published with Paulsen's paper.
[9] Hann: Op. cit., vol. iii., pp. 154–69. Also M. Alfred Angot's fine maps in his Régime des Pluies de l'Europe Occidentale.
[10] Hirsch: Handbuch der Historisch-Geographischen Pathologie.
[11] Op. cit., vol. i., p. 87.
[12] Hann, vol. iii., pp. 154–69.
[13] On the Sirocco, see Hann, op. cit., vol. iii., p. 49.
[14] Annalen der Schweizerischen Meteorologischen Central-Anstalt, 1900.
[15] Topographischer Atlas der Schweiz.
[16] La Propagation de la Tuberculose, 1900, pp. 7, 8.
[17] Assez grossier, loc. cit., p. 7.
[18] Hann: Op. cit., vol. iii., p. 114.

There are, broadly speaking, (1) a belt of high phthisis mortality all along the north-west and north coasts of France, reaching a considerable distance inland and corresponding to a region where probably north-west, west, and south-west are all wet winds; (2) a broad interior region of lower phthisis death-rate, over which the south-west winds from Spain must be relatively dry; (3) a region of high death-rate along the valleys of the Rhone and Saône, where rainy winds from the Atlantic and the Mediterranean may be supposed to meet; but (4) a low death-rate in the Alps, the valleys of which are protected from all rainy quarters; (5) the Pyrenean valleys have also a low death-rate, in spite of their heavy rainfall, because their direction shelters them also from the west.

Corsica has most phthisis, Dr. Trotter informs me,[19] on its western side, which is the more exposed to rainy winds. It must, however, at the same time be mentioned that the western is the poorer district.

Spain.—The heaviest rainfall in Spain is on its northern and north-western coasts, where the Atlantic gales are fully felt. The least rainfall and least wind are on its south-eastern coast at Malaga and Valencia.[20] According to Dr. Zerolo's figures, quoted by Dr. J. Cleasby Taylor (see Table VIII.), the phthisis death-rates in these two regions are

TABLE VIII.—*Average Death-rates per 1000 from Phthisis in Northern and South-eastern Coast Provinces of Spain during Five Years, from Zerolo's "Tuberculose y Clinatherapeutica" in order of Ascending Phthisis Mortality.*

Atlantic coast, North.	Population.	Death-rate.	Mediterranean coast, S.E.	Population.	Death-rate.
Corunna	602,562	1·70	Almeria ...	354,619	0·69
Santander ...	236,903	1·84	Alicante ...	415,077	0·80
San Sebastian	171,170	2·26	Valencia ...	686,766	1·10
Bilbao	193,233	2·66	Malaga ...	509,171	1·11
			Murcia ...	457,765	1·25

as strikingly different as their wind and rain. Barcelona, which appears to get more rainy wind than the districts further south, has a higher death-rate from phthisis than they have.

Italy.—The chief rainy winds appear to be south-westerly, westerly, and north-westerly, and the rainfall is heavier on the western side of the peninsula.[21] The south-east seems to be a rainy wind only round the head of the Adriatic.[22] The figures recently given by Dr. H. T. Bulstrode (see Table IX.) for the distribution of phthisis in the provinces[23] correspond strikingly with the conditions of wind and rain.

TABLE IX.—*Average Death-rates per 10,000 from Phthisis in the Provinces of Italy from 1888–94 and 1897–99, from Dr. Bulstrode's Milroy Lectures.*

Provinces west of the Apennines from north to south.		Provinces east of the Apennines from north to south.	
Coast		Piedmont	12·3
Liguria	16·0	Lombardy	13·0
Tuscany	14·6	Venetia	10·2
Latium	14·3	Emilia	12·1
Campania	7·8	The Marches	8·0
Calabria	5·4	Abruzzi	6·7
Inland		Apulia	8·1
Umbria	8·7	Basilicata	4·0

Northern Africa.—Algiers, exposed to a prevalent north-west rainy wind,[24] has a considerable death-rate in its coast towns.[25] Tunis, sheltered by the extremity of Mount Atlas from north-west winds, is extremely dry[26] and tuberculosis is stated to be less common amongst the French troops there than in any other corps of the French army.[27] The Delta of the Nile, where rainy winds from the north-west and north are common,[28] contrasts markedly with the country above Cairo in having a considerable death-rate from phthisis.

Persia.—Persia is a very dry country[29] and Sir Hugh Adcock informs me that phthisis there is "not at all common."[30]

Kashmir.—Kashmir is shut in by great mountains on all sides and is therefore comparatively windless.[31] Mr. A. Neve tells me that, except in the very crowded and insanitary capital, phthisis is "almost unknown."[32]

Japan.—The distribution of phthisis in Japan is interesting. Dr. W. W. Colborne of Hakodate has been so kind as to send me a map of the distribution of phthisis in the cantons. Before consulting Hann's Climatology on the meteorology of Japan, I tried to discover from the phthisis distribution what is the prevalent strong rainy wind and decided that the north-west must be the wind in question. On referring to Hann I found that it is so.[33] The north-west wind of winter is in Japan a very violent, constant, and rainy wind. There is, however, another rainy wind—the south-west of summer. This brings a heavy rainfall but its force is "incomparably" less than that of the winter north-west.

United States of America.—For the whole of the United States I can only obtain the table given by Davidson. (See Table X.)[34] This only deals with one year and only gives

TABLE X.—*Showing for the Rural Districts of Regions of the United States the Proportion amongst Females of Deaths from Phthisis in 1000 Deaths from Known Causes (Billings, quoted by Davidson).*

No.	Grand groups.	Proportion per 1000 deaths.
1	North Atlantic Coast region.	197·2
2	Middle ,, ,, ,,	168·5
3	South ,, ,, ,,	101·6
4	Gulf Coast region.	100·9
5	North-Eastern hills and plateaux.	186·1
6	Central Appalachian region.	136·9
7	Region of Great Northern Lakes.	156·8
8	Interior plateau.	166·6
9	Southern Central Appalachian region.	171·0
10	Ohio River belt.	195·6
11	Southern Interior plateau.	116·5
12	South Mississippi River belt.	115·7
13	North ,, ,, ,,	125·3
14	South-West Central region.	84·4
15	Central region plains and plateaux.	180·4
16	Prairie region.	122·0
17	Missouri River belt.	121·4
18	Region of Western Plains.	68·2
19	Heavily timbered region of North-West.	139·1
20	Cordilleran region.	85·6
21	Pacific region.	184·1

the phthisis death-rate per 1000 deaths from known causes. Still, it is clearly worth considering. The greater part of the United States consists of wide plains, swept by westerly, north-westerly, and south-westerly winds.[35] On the Pacific side the rain is cut off from the interior by a lofty range parallel to the coast. Within this western rampart the land is raised in high valleys and plateaux, broken by great mountain ranges which culminate in the Rockies. Over this elevated region strong winds blow but they are for the most part dry, the rainfall being small. East of the Rockies the winds across the great plains are still relatively dry until

[19] Private letter.
[20] Bartholomew's Atlas of Meteorology, plate xx. Also Hann, op. cit., vol. iii., pp. 77 and 79. Also Bennet's Winter and Spring on the Shores of the Mediterranean, p. 556.
[21] Bennet: Op. cit., pp. 69 and 355. Hann: Op. cit., vol. iii., pp. 88 and 89. Bartholomew's Atlas of Meteorology, plate xx.
[22] Hann, Loc. cit.
[23] Milroy Lectures, 1903. THE LANCET, August 1st, 1903, p. 298.
[24] Bennet: Op. cit., pp. 521–25. Private letter from Dr. W. Thomson, Mustapha.
[25] Davidson: Op. cit., vol. ii., pp. 594, 595.
[26] Bartholomew's Atlas of Meteorology, plates xxi. and xxii.
[27] Clemow: Op. cit., p. 459.
[28] Hann: Op. cit., vol. iii., pp. 72, 73.
[29] Ibid, p. 111.
[30] Private letter.
[31] Ibid. [32] Ibid.
[33] Hann: Op. cit., vol. iii., pp. 250–56.
[34] Davidson: Op. cit., vol. ii., p. 848, taken from the report on the Mortality and Vital Statistics of the United States, by John S. Billings, Parts 1 and 2, Washington, 1885.
[35] Hann: Op. cit., vol. iii., pp. 310–17. Also Solly: Medical Climatology, pp. 185–86.

the Mississippi valley is approached. There rainy south-west winds become frequent and extend over the Eastern States. On the Atlantic seaboard rainy winds from easterly directions are common and strong. The Appalachian range in the Eastern States must have rainy winds from both east and west. In Florida, according to the Storm Plates in Bartholomew's Meteorological Atlas, the wind is lighter. Bartholomew's Atlas also shows well the distribution of rainfall in the States.[36] Corresponding to this distribution of rainy wind the census for 1880 gives the following distribution of phthisis mortality (Table X.). The Pacific coast has a high death-rate, though it should be remembered that it has not been divided as the Atlantic coast has been in the census, so that it is impossible to say whether the mortality south of San Francisco is different from that further north; also it must be borne in mind that South California is a much-used phthisis sanatorium and that therefore many cases are imported. The Cordilleran region of raised valleys and plains within the western rampart is relatively free from phthisis. So are the western plains under the lee of the Rockies. As the Mississippi is approached the phthisis death-rate increases and becomes greatest over the Appalachians and on the Northern and Central Atlantic coast. Florida, in spite of a heavy rainfall and partly negro population,[37] has a relatively low mortality. The table of wind velocities in America, given in Table XI., has a certain value, although it must be remembered that such *average* estimates take no account of the occasional force of the wind. Thus no indication is given by the figures that the wind on the Pacific coast, although more continuous than on the Atlantic, is weaker[38]—a fact probably of great importance in respect of its influence on phthisis. Neither does it show the dryness or raininess of the gales. Storm frequency in different parts of the Eastern States, as shown in Bartholomew's Atlas, corresponds with the phthisis mortality distribution to an extent which is at least suggestive. Where storms are rare and rain is heavy and where storms are frequent but rainfall is light, phthisis is uncommon. Where storms are frequent and rainfall is heavy phthisis is prevalent. The Atlas shows the same in the case of Italy.

TABLE XI.—*Constructed from Solly's "Medical Climatology" and Davidson's "Geographical Pathology."*

Female phthisis death-rate per 1000 known deaths in region, 1880.	Region.	Town.	Town. Rainfall: inches.	Town. Wind: annual mean hourly velocity.
	Regions where Phthisis is Common.			
197·2	North Atlantic coast.	Boston.	46·0	10·9
		New York.	45·0	9·4
160·5	Middle Atlantic coast.	Atlantic city.	42·9	11·9
		Cape May.	47·6	13·4
134·1	Pacific coast. (South Pacific health resorts considered separately, probably many imported cases.)	St. Francisco.	24·0	9·5
156·6	Region of Northern Lakes.	Chicago.	35·0	9·6
	Regions where Phthisis is Uncommon.			
68·2	Western Plains.	Colorado Springs.	14·4	9·1
		Denver.	14·4	6·6
		Merilla.	—	2·3
		Pueblo.	12·0	7·4
		Santa Fé.	14·6	6·4
		El Paso.	9·0	5·5
		San Anthonio.	30·6	7·0
85·6	Cordilleran.	Salt Lake City.	18·9	5·0
		Phœnix.	0·7	2·3
		Prescott.	16·0	7·0
		Fort Grant.	16·8	7·0
		Tucson.	12·0	5·0
		Fort Apache.	2·0	6·5
		Yuma.	3·0	6·0
Rare.	Central Mexico.	Mexico.	24 (under)	2·0
		Guadalajara.	34	2·5
	South Pacific Phthisis Health Resorts.			
—		Los Angelos.	13·0	5·1
—		Santa Barbara.	13·0	4·0
—		San Diego.	10·0	5·6

[36] Bartholomew's Atlas of Meteorology, plate xxi.
[37] Longstaff: Studies in Statistics, plate ix.

B. The Southerly Region of Westerly Winds.

The rainfall of this region is generally less than that of the preceding region and is more apt to occur in sudden deluges comparatively soon over. It may therefore be said that prevalent strong wet winds are less marked than in the northern region of westerly winds and it is interesting to observe that phthisis appears to be correspondingly less frequent. It must not, however, be forgotten that the countries in this region are comparatively newly settled.

Australia.—Victoria is more exposed to rainy winds than either New South Wales or South Australia and has, according to the statistics quoted by Dr. Bulstrode,[39] a higher death-rate. (See Table XII.)

TABLE XII.—*Deaths per 1000 from Phthisis in Victoria, New South Wales, and South Australia, from Dr. Bulstrode's Milroy Lectures.*

—	1886 to 1890.	1891 to 1895.	1896 to 1898.
Victoria...	1·45	1·33	1·43
South Australia... ...	1·06	0·89	0·87
New South Wales ...	0·90	0·86	0·79

South Africa.—The prevalent rainy winds for the eastern part of the colony, about which alone I have information, are south-easterly.[40] Along the coast exposed to this wind phthisis appears to be common.[41] According to Clemow, it is "alarmingly prevalent amongst the natives" in Pondoland, Tembuland, and Transkei, "in spite of their open-air life."[42] Across the mountain range, however, which cuts off the south-east wind from the interior, in the Karoo, in British Bechuanaland, and in the district bordering on the Orange Free State phthisis is said to be uncommon.[43]

South America.—Under the lee of the Andes in Argentina there is a region very free from rainy winds.[44] Phthisis is said to be uncommon there, although on the coasts of both Chili and Argentina it is prevalent.[45]

C. Region of the North-East Trade Winds.

The regions both of north-east and south-east trade winds unfortunately include few places where satisfactory statistics exist. Deaths are so often uncertified even in towns, mixture of races introduces such confusion, and an apparent tendency of the disease to prevail in coast towns in the tropics is so general that safe conclusions can rarely be drawn. I shall, therefore, only refer to those statements which seem to deserve special consideration. The north-east trades blow steadily all the year as moderate breezes. Gales are uncommon. At the sea-level the trade wind is dry, but rain may be very heavy when the wind is forced upwards by rising land. The region in which they continually blow may be said to begin at 25° N. latitude and to extend to the equatorial calm belt. This belt begins about 10° N. latitude in our summer and about 5° N. latitude in our winter in the East Atlantic and perhaps in the East Pacific. In the west of both oceans the trade wind probably blows right up to the equator.

Abyssinia.—The statement that phthisis is rare on the plateau of Abyssinia has had some stress laid on it.[46] If true, this may perhaps be accounted for by the fact that this

[38] Solly: Op. cit., p. 311.
[39] Op. cit., THE LANCET, August 1st, 1903, p. 301, table x.
[40] Hann: Op. cit., vol. iii., pp. 354–57 and 363–65. Bartholomew's Atlas of Meteorology, plate xxvii.
[41] Davidson: Op. cit., vol. ii., p. 656. Clemow: Op. cit., p. 460.
[42] Clemow: Op. cit., p. 460.
[43] Hann: Op. cit., vol. iii., p. 376.
[44] Bartholomew's Atlas shows a very low rainfall.
[45] Davidson: Op. cit., vol. ii., pp. 983, 975, 976.
[46] Hirsch: Op. cit., vol. iii., p. 206.

plateau is surrounded by high mountains which must form an effectual wind screen.

Jamaica.—Davidson states that during 1897 and 1898, whilst the death-rate from phthisis for the whole island was 1·7 per 1000, the country district of St. Elizabeth, on the south-western coast, sheltered from the trade-wind, had so low a death-rate as 0·09 per 1000.[47]

Mexico.—The wind movement is very small at the city of Mexico and the rainfall is moderate.[48] Phthisis amongst Europeans in the surrounding tableland is said to be seldom seen, although it is common on both the Atlantic and Pacific coasts.[49]

British Guiana.—Georgetown, fully exposed to the north-east trade, blowing directly and forcibly on to the coast, with a heavy rainfall,[50] has a heavy death-rate.[51]

D. Region of the South-east Trade Winds.

These are only a little stronger than the north-east. They may be said to blow continually between 25° S. and the equator. In this region lies the famous group of Andean high altitudes where phthisis is rare or unknown. Quito has a heavy rainfall (some say 70 inches),[52] but it lies in a great valley the eastern rampart of which must shut out the trade wind. Jauja and Tarma, in Peru, lie in a "well-sheltered valley."[53] Arequipa, on the western slope of the Andes, has very little wind or rain.[54] La Paz in Bolivia has a rainfall of less than 10 inches,[55] and is well sheltered from south-east wind by mountains. On the other hand, phthisis is common all along the Brazilian coast, which is directly exposed to the trade wind and has a heavy rainfall.[56]

E. The So-called Equatorial Calm Belt.

This belt appears to be well marked in the East Atlantic Ocean. Along the Gold Coast, according to Dr. W. T. Prout, phthisis is not common.[57] In the colony of Lagos I have learnt, through the kindness of the late Governor, Sir William MacGregor, that it is rare.[58] For the rainy part of the year both colonies lie within the belt of equatorial calms and light, variable winds. The season, in which the colonies are outside this belt, is dry. All the year round a south-west wind makes itself felt,[59] but this appears to be only a gentle breeze.

So-called "Calm Belts" of Cancer and Capricorn.

There seems a great deal of evidence that between the latitudes of 25° and 35° N. and S. a belt of calms and light variable winds about 5° broad encircles the globe and moves to and fro with the seasons. Between 30° and 35° N. and S. the year is divided between this calm belt and the westerly winds, and the latter probably so far neutralise the effect of the former that for the present purpose this part of each belt may be placed (as has been done) in the regions of westerly winds. But between 25° and 30° N. and S. the calm belt alternates with the gentle trade winds, and these latitudes ought to be characterised by relatively less phthisis owing to relative rarity of rainy wind. Moreover, the calm belts are dry belts which should make the relative rarity of phthisis even more probable. In the southern hemisphere the belt of Capricorn runs more or less horizontally round the earth, but in the northern hemisphere the continent of Asia is said to draw the belt of cancer locally somewhat further north. It will, I think, be seen that a very remarkable correspondence between these belts and low phthisis death-rate exists in those countries where it can be investigated.

F. The "Calm Belt" of Cancer.

Florida and a small strip of the *Gulf Coast of North America* have been shown to have a low phthisis death-rate in spite of a largely negro population and a heavy rainfall. The *Canaries* have a lower death-rate than any part of Spain—viz., 0·7 per 1000.[60] *Egypt between Cairo and Assouan* is nearly free from phthisis.[61] Further east the position of the belt becomes uncertain.

[47] Davidson: Op. cit., vol. ii., p. 909.
[48] Solly: Op. cit., p. 456.
[49] Davidson: Op. cit., vol. ii., pp. 888, 881.
[50] Hann: Op. cit., vol. ii., p. 357.
[51] Davidson: Op. cit., vol. ii., p. 933.
[52] Solly: Op. cit., pp. 370-71.
[53] Ibid., p. 373.
[54] Ibid., p. 372.
[55] Bartholomew's Atlas of Meteorology, plate xviii.
[56] Davidson: Op. cit., vol. ii., p. 963.
[57] Ibid., p. 634.
[58] Private letter.
[59] Hann: Op. cit., vol. ii., pp. 70, 71, and 22.
[60] Taylor: Op. cit., p. 63.
[61] Clemow: Op. cit., p. 456.

G. The "Calm Belt" of Capricorn.

South Africa.—British Bechuanaland, the Orange Free State, Basutoland, and part of the Transvaal, in all of which phthisis is almost unknown,[62] as well as Zululand and Natal, in which it is uncommon,[63] lie between 25° and 30°.

Australia.—The Darling Downs of Queensland, perhaps the best climate for phthisis in the continent,[64] lie within the belt. They are remarkable for the absence even of the hot winds which other parts of the interior experience.[65]

The Faröes, the Falklands, and Iceland.

Lastly, there are three countries which have been grouped together and said to constitute a strong objection to the conclusions as regards rainy wind and phthisis arrived at elsewhere—viz., the Faröes, the Falklands, and Iceland.

Of these the *Faröes* have, Dr. Rördam informs me, not a low mortality from phthisis, as has been supposed, but one probably as high as Denmark generally.[66]

The *Falklands*, where phthisis has been said to be very rare, have a low rainfall—only about 20 inches; the prevailing winds are westerly at all seasons (see Table XIII.)[67]

TABLE XIII.—*Frequency of Winds in the Falkland Islands (Hann).*

—	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calms.
Spring and summer ...	9·6	6·3	5·3	8·0	24·7	52·0	46·7	25·7	2·7
Autumn and winter ...	14·0	4·0	7·0	3·7	13·3	30·0	61·7	37·0	13·0

and the inhabitants have built their dwellings almost everywhere in shelter, as can be seen from the Government Survey Map. Stanley, the only town, is built on the shores of a land-locked inlet, sheltered from every wind.

Iceland, where phthisis is said to be uncommon, has a moderate rainfall of about 28 inches in its western parts, from which the statements come relating to phthisis rarity, where the capital lies and where the bulk of the population appear to dwell. The prevailing winds are from the east (see Table XIV.)[68] and having to cross the high tableland

TABLE XIV.—*Frequency of Winds in Reykjavik and Stykkisholm, Iceland (Hann).*

—	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Winter ...	9	25	22	12	9	17	4	2
Summer	12	13	20	13	11	11	8	12
Year ...	12	19	22	13	10	13	5	6

of the centre of the island are dried and broken when they descend to the western coast.

Thus, in none of these three instances can it be said that prevalent strong rainy wind coexists with rarity of phthisis, and the objection based on them does not hold.

Summary of the Foregoing.

In all these different parts of the globe, therefore, prevalence of strong rainy winds appears to be remarkably associated with increased prevalence of phthisis, whilst absence of such winds seems to correspond strikingly with rarity of phthisis.

(To be continued.)

[62] Ibid., p. 461.
[63] J. F. Allen: Transactions of the British Congress of Tuberculosis, vol. iii., pp. 39-50.
[64] Wilson: The Ocean as a Health Resort, p. 213.
[65] Ibid.
[66] Private letter.
[67] Hann: Op. cit., vol. iii., pp. 466-67.
[68] Ibid., pp. 491-97.

WEST CORNWALL INFIRMARY.—In the spring of 1904 the governors of the West Cornwall Infirmary, Penzance, decided to erect a new hospital at an estimated cost of £8000. Towards this amount over £5000 have been received. The land has now been acquired and the erection of the building will be commenced shortly.

THE CULTIVATION OF TRYPANOSOMA OUT OF THE LEISHMAN-DONOVAN BODY UPON THE METHOD OF CAPTAIN L. ROGERS, I.M.S.

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(With Coloured Illustration.)

FOLLOWING the method of my teacher, Captain L. Rogers, I.M.S., for cultivating Leishman-Donovan bodies in citrate of sodium solution I have succeeded in developing trypanosoma from the Leishman-Donovan bodies.

The patient from whom the blood for making the culture was taken by spleen puncture was an inhabitant of Sylhet. He gave a history that three members of his family had died recently from fever with enlarged spleen and œdema of the legs. He had been suffering from the fever for six months and was very anæmic. The spleen reached down to the umbilicus but the liver was not enlarged. There was no marked pigmentation. The temperature of the patient at the time of the puncture was 102° F.

The following procedure was adopted for taking the blood from the patient and for cultivating the parasites found in it. The skin over the region of the spleen was cleaned with soap and water and then washed with a 1 in 20 carbolic lotion. A five cubic centimetre syringe, sterilised in a 1 in 20 carbolic lotion and washed in boiling water, was used for puncturing the spleen. After drawing out the blood it was emptied into a test-tube containing one cubic centimetre of 5 per cent. citrate of sodium (the test-tube with the citrate solution being previously autoclaved at 115° C.). The test-tube was then placed in a beaker which was put inside an ice-box.

A stained slide preparation of the blood made on the first day showed a good number of distinct Leishman-Donovan bodies, from three to four being found in a single field. On the next day a stained specimen made from the citrated blood showed great increase of the parasites in number, so much so that from 200 to 500 bodies could be counted in a single field instead of the three or four seen on the first day. The parasites showed increased development; they were distinctly larger in size. The micronucleus was distinctly increased in size and was less circumscribed and was elongated in shape. The micronucleus was situated at one end of the oval body instead of being in the middle. The contents of the body of the parasite were more granular; numerous dividing ones were seen. No flagellate forms were found on this day.

On the third day the stained slide from the blood showed a remarkable appearance.[1] In many of the fields were seen elongated Leishman-Donovan bodies with a thick flagellum. In some portions of the field they were seen in thick clumps, the clumps consisting of from 30 to 40 flagellate bodies. In these clumps were seen all the stages from a simple Leishman-Donovan body to a fully developed trypanosoma-like body. Several dividing ones were also seen possessing two flagella, two macronuclei, and two elongated bodies lying parallel to each other but possessing a single micronucleus situated transversely to the body. Several bodies were found which were indistinguishable from an ordinary Leishman-Donovan body except by the possession of a long flagellum. Besides these there were the fully developed ones, in which the body was elongated (much longer than a Leishman-Donovan body) and narrow and provided with a long thick flagellum. The flagellum was longer than the body of the parasite and was thicker than the flagellum of an ordinary trypanosoma (trypanosoma Brucei or Evansi). It took its origin from the micronucleus situated at one end of the parasite; in many the micronucleus was connected to the flagellum by a portion of darkly stained protoplasm. A vacuole-like organ was seen near the micronucleus; in some it was found towards the middle of the body of the parasite. The macronucleus was found situated in the middle of the body and was elongated in shape and not so defined as in the Leishman-Donovan body. No undulating membrane could be made out. The body of the parasite was filled with bluish-stained granules. No other structure could be made out. The posterior end (that opposite to the flagellum end) was finely drawn out as it were into a small flagellum.

In the moist hanging-drop preparation made on the third day the appearance of the fully developed parasite was most interesting. In examining the specimen under $\frac{1}{12}$th inch oil immersion lens I found several elongated flagellate bodies moving slowly across the field by a lashing side-to-side movement of the flagellum, this end being the front of the moving parasite. The movement was distinctly slow, much slower than that of an ordinary trypanosoma (trypanosoma Brucei or Evansi). No wriggling movement could be made out. The thick flagellum end was distinctly seen moving among the broken-down red corpuscles which were pushed out by the jerking movement of the flagellum. In one field I found a group of these parasites lying in a clump, their anterior ends being free, reminding one of the rosette formation of trypanosoma Lewisi by Laveran and Mesnil.[2] The free ends showed the movement of the flagella. In the free ones no movement in the posterior end of the parasite was seen.

The following peculiarities are noticeable in the parasites described above: (1) the position of the micronucleus at the anterior end of the body of the parasites; (2) the long, thick anterior flagellum; (3) the absence of (or, if present, rudimentary) undulating membrane; and (4) the rudimentary posterior flagellum. On account of the presence of these characters they would appear to be less closely allied to the class trypanosomiæ, such as trypanosoma Brucei and trypanosoma Evansi, than to the class of trypanopis described by Keysselitz,[3] which is characterised by the possession of a micronucleus at the anterior end, a long thick anterior flagellum taking its origin from the micronucleus, a rudimentary, undulating membrane, and a hardly discernible posterior flagellum which takes no part in the movement of the parasite.

In conclusion, I beg to express my indebtedness to Captain Rogers, officiating professor of pathology, Medical College, Calcutta, for kindly allowing me to publish the paper and for revising it.

DESCRIPTION OF THE PLATES.

Plate 1 is drawn from a comparatively crowded field showing numerous developed Leishman-Donovan bodies on the third day stained with Leishman's stain. Drawn under a $\frac{1}{12}$th inch oil immersion lens. No fully developed body is seen here; several dividing flagellated parasites as well as several elongated Leishman-Donovan bodies without any flagella are seen.

Plate 2.—From the same specimen, selected from several fields. No. 3 is a fully developed parasite curled upon itself.

Calcutta.

[1] The detailed description of the flagellate bodies given here is confirmatory of that already noticed by Captain Rogers.

[2] Doplein and Sv. Prowazek: Handbuch der Pathologischen Mikroorganismen von Wassermann und Kolle, S. 933, fig. 45.

[3] C. Keysselitz: Uber Trypanopis Grobbenii, Archiv für Protistenkunde, S. 367.

CHILD STUDY AND THE TREATMENT OF PARALYSIS IN CHILDREN.

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THE art of walking and of standing as carried on by a fully-developed human being seems at first sight to be hardly more difficult of acquisition than the swinging of a jointed pendulum. On more careful examination, however, each stage of movement and each position of rest are found to be gained only as the result of many trials and not a few failures, which have placed a complex arrangement of many muscles under the control of the will. It is difficult to overestimate the fact that each additional accomplishment is only acquired after much individual effort of the child and is not the mere exercise of an inherited nervous organisation. The intricate nature of the muscular arrangement is clearly brought out when by a partial paralysis of the limb some constituent element is thrown out of action. Defective or discordant movements then result. A similar complexity is noticeable in the movements of the upper as of the lower limb. This is evidenced by the fact that in extension of the hand on the forearm we not only contract the extensors but almost, though not quite, simultaneously we also contract the flexors of the wrist with a little less vigour. By this means we provide not only a break which

prevents a jolt or excessive action but we also guide the resulting movements into a more precise and definite channel.

There are a considerable number of cripple children suffering from congenital spastic paraplegia who show in a very marked degree an irregular or abnormal innervation which is very instructive in any analysis of the movements of the limbs. The difference that should normally exist between the innervation of the antagonistic groups by which the predominant group receives more and the coöperating group less than its share of volitional impulses is well marked in these cases. This latter coöperating group, though it is insufficiently innervated, is not usually completely paralysed. The result of this as regards the legs is that spasm occurs in the predominating group such as the adductors and internal rotators, and paralysis of the abductors and external rotators. A more or less complete inability to use the limb naturally results. The cause of this disarrangement of innervation is generally that some portion of the cortex of the brain, or some portion immediately subjacent to the cortex, has been injured by disease generally before birth. From this cause the normal impulses do not arise from the cortex to set the limbs in action. To this must be added the fact that peripheral impulses of muscular and tactile sense also fail to reach the cortex and help in the elaboration by which the irregular and aimless movements of infancy become organised into orderly purposive movements. When the original disease has ceased to be active more or less recuperation of tissue occurs. The less injured areas become capable of discharging impulses and of receiving peripheral sense impressions. In cases of spastic paraplegia both these occur later than in the healthy child. There is in them a long period of listlessness, apathy, and paralysis. The children also generally suffer from defective speech. Mental deficiency is also common. Such cerebral impulses as do occur are irregular and unequally distributed to the different muscle groups, consequently the combined spasm and paresis already referred to result. If by the time the child is six or eight years old he has, of himself, acquired sufficient muscular coördination to be able to get about on crutches, orthopædic surgery is able to deal with the case and provide a more or less satisfactory limb. In the severer forms of this disease little or no benefit accrues from such treatment. The extent of the spontaneous cure depends partly on the amount of brain tissue still left uninjured; it also depends largely on the means that are taken to ameliorate the condition by the child's attendants. Further examination of this condition will, I believe, enable us to accomplish considerably more than has hitherto been generally supposed. Every fresh effort made by the child, and especially every successful effort, in achieving a new organised movement becomes in its turn a very potent therapeutic agent.

A number of cases of infantile spastic paraplegia were taken into the Greengate Dispensary about six months ago. They were apparently hopeless cases. A course of exercise-treatment was planned upon lines to be presently described. So much benefit has already accrued that it seems advisable to bring forward the methods adopted for the examination and criticism of those who have to deal with similar problems. These methods are based on a study of the natural order in which the normal child acquires control of the muscles used in walking and in standing. A brief description of the order of this development is therefore perhaps not out of place.

The movements of a very young infant largely consist of those of the head and neck, the eyes, and the coarser movements of the arm and leg. The order and degree in which these pass from spontaneous aimless movements into voluntary purposive movements have already been described by me in *Brain* (autumn number, 1897). At the age of three or four months normal infants have sufficiently acquired voluntary power over the spinal and other muscles to be able to sit upright and to look about them. An important part of their education in coördination has been obtained by kicking against the bed, &c., and so arousing the muscular and tactile senses; by this means they gain a knowledge of the force to be exerted and also a knowledge of position; by the sixth month the child exhibits sufficient pleasure in organised muscular action to enjoy pushing his feet against the floor when the attendant holds the body and allows the feet to dangle; and by the ninth or tenth month rhythmic movements of extension and flexion take place in the two legs alternately. These early movements, which are precursory to walking, seem to be partially reflex in character. Though the child cannot actually walk or stand he has already gained considerable control over the movements by which he will presently be able to do so.

Another element in standing—viz., balancing of the head and trunk—is next acquired. At first the child calls to his aid the hands and arms and balances himself by grasping his mother's dress or some other object. This is half way to bi-pedal progression. The position of the feet at this stage of learning is very characteristic. The legs are separated and widely apart, the toes are turned inwards, and there is a vigorous flexion of the great toe and the digits so that the feet seem to be actually gripping the floor. This stage is generally acquired by the twelfth month. (Fig. 1.)

FIG. 1.

Diagram of a normal child to show the important part played by the toes in standing; they are so tightly flexed that they seem actually to grip the floor. The toes are directed inwards and the feet separated.

Before the child acquires the power of maintaining an erect position and of walking upright there is very frequently an intermediate stage of progression on all fours (Fig. 2).

FIG. 2.

Diagram composed from a photograph by Dr. S. Buckman, showing a child, aged ten months, with plantigrade progression. Transactions of the Cotteswold Naturalists' Field Club, December, 1899.

This is generally carried on by the child balancing his body on two hands and one foot, using the knee of the remaining leg as a paddle to push himself along. The everted position

of the hands and soles of the feet exhibited in these movements of progression may be described as displacement ones. The movements were apparently originally adapted for a fluid medium but when used by the child against a rigid resisting medium such as the floor they result in moving the body of the child. Progression on all fours causes a great improvement in the muscles of the trunk. It also develops the abductors and external rotators of the thigh and helps to coördinate these with the adductors and internal rotators. The importance of understanding this stage is very great when we come to study the symptoms of spastic paraplegia of infancy. It is owing to the weakness of the external rotators and the abductors of the thigh that spasm occurs in the adductors and internal rotators when the child attempts to walk. The confusion causes the legs to become useless for walking or standing. The duration of the period of four-footed progression in the normal child is much influenced by the methods adopted in his early training. It is frequently entirely passed over.

One observer records that his daughter who was entirely left to her own devices began to creep about on all fours by the end of the fifth month; by the end of the tenth month she moved briskly about on all fours like a monkey. She made no attempt at this time to raise the body into an erect position. Another observer writing in *Nature*, July, 1900, gave a photograph of a child, aged ten months, who also showed this four-footed progression very completely. After a febrile illness occurring a little later this power became completely lost. The method which a child naturally follows in acquiring control over his limb movements has suggested the line adopted in the treatment of the cripples at Greengate Dispensary. The teacher or masseur began by steadily practising flexion and extension of the almost useless legs. After a time he practised a slow external rotation and circumduction of both thighs. He constantly massaged all the muscles to stimulate them to healthy action and to overcome the rigidity. These exercises were practised for a few minutes at a time at least 12 or 14 times a day. The child's attention was constantly directed to these movements that they might be permanently engraved on his memory and so

FIG. 3.

A normal child, about 20 months old, helping to raise himself by means of a curtain; he is able to use his legs when assisted by his arms.

become organised in the cerebral cortex. Presently an attempt was made by the child when lying on his back to make these movements voluntarily and without the accompanying spasm. As soon, however, as the child was held upright and the legs were allowed to dangle the spasm returned on the child making any exertion. Spasm was always held to be a reason for stopping the treatment temporarily. Spasm also occurred on any excitement. The next stage consisted in an attempt to imitate the four-footed method of progression. The child was laid on his face, a bar fixed to a chain was placed in his hands, and while

FIG. 4.

A normal child, 22 months old, able to stand on his feet when the arms and shoulders coöperate in supporting him.

lying face downwards he was encouraged to pull himself forward. The mere lying in this position is good, for it produces extension of the hips together with some abduction. Voluntary exercise in this position leads almost automatically to a certain amount of external rotation and a separation of the thighs. In the early stages the legs themselves hardly seem to participate at all in the forward movement but remain inert; presently, however, they definitely do participate and a step forwards to quadrupedal progression is

FIG. 5.

A normal child, 22 months old, able to stand alone with the feet separated and the knees not quite extended; the arms are held out to assist balance.

secured. About this time the child can be taught voluntary movements of abduction and circumduction of the thighs and also alternate flexion of the two legs. When by means

of these movements a fair degree of flexibility and a diminution of the spasm have been secured a further stage may be tried and the child encouraged to put his feet upon the floor. Like an infant, his body must at first be securely held. Then again following the lines of normal progress the child may be encouraged to balance himself by holding on to the side of the bed or a suitably constructed walking frame.

Attention has now to be paid to the movements of the shoulders and the arms. Reference to Figs. 3 and 4 shows that in normal children the muscles of the shoulders and the arms play a very considerable part in maintaining the balance of the body at this stage. In the case of the cripple children these muscles, like those of the leg, are very weak and ill-developed. They need special attention. Accordingly parallel bars are arranged of such a height that when the child is held upright, with his arms held straight downwards, he can just grasp the bars while his feet touch the ground. He then learns to hold himself from the shoulder.

When by these means a fair degree of balance has been gained the child may be trained to use crutches. Volitional control over the coarser movements of the thighs and knees has been gained but without the power of grasp in the hands and the power of holding the arms and shoulders rigid; this has been found to be useless. Whether further power can also be gained in the finer movements of the ankle and foot must be decided by further experiments. It may be that methods of orthopædic surgery will alone be efficacious—the children at Greengate Dispensary are under the supervision of surgeons who have interested themselves in this branch of work. Sufficient experience has been gained to justify the workers at the Greengate Dispensary in the prosecution of further researches. It is hoped that others who have thought much upon this matter will offer suggestions or criticisms.

It may be added that these movements and exercises are evidently a source of real pleasure and joy to the child and that he increases in weight, in vigour, and in mental alertness while they are being continued. Constant intermission must be provided as he very readily tires.

Manchester.

DIET IN CHRONIC DISEASES.

BY JOHN HADDON, M.A., M.D. EDIN.

As the subject of diet is receiving considerable attention, more especially in America, the following cases seem worthy of being recorded.

CASE 1.—The patient, an unmarried woman, aged 66 years, had an illness when 18 years old which was said to be a gastric trouble and at that time she was ill for two years. She had had similar attacks every seven years since and had been more or less an invalid. When seen in consultation with her medical attendant on June 28th, 1904, I found that she had been in bed for six months and was being fed on Benger's food, having one grain of morphine in a suppository every night, and was reduced to a perfect skeleton. She brought up, apparently by a kind of eructation, fluid of a greenish colour, varying from half a pint to a pint during the day. The bowels did not act except by medicine or an enema. She was taking food to relieve pain which came on two hours after food and which the food relieved. She was supposed to be dying and looked as if she were. The skin over the left side of the abdomen and the ribs was very sensitive to touch. There was no distension but some dulness on both sides, due probably to fæcal matter, and fæces could be felt in the intestines. There were splashing in the stomach and abdominal pulsation. The pulse was weak and the heart sounds were feeble, without any murmur. She was too weak even to sit up. She was ordered to have nothing except water. On the 29th, about 2 A.M., her sisters, who were nursing her, thought that she was dying and sent for her medical attendant who ordered an enema of beef-tea and brandy in teaspoonfuls by the mouth. When I saw her in the forenoon she had brought up three-quarters of a breakfast-cupful of the greenish fluid since the day before and had drunk six breakfast-cupfuls of water, mostly on the previous day. She had a natural motion in the morning, with traces of yellow, that which the enema had brought away before being of a dark colour throughout. The dulness on the right side of the abdomen had disappeared and there was no splashing in the stomach. She cried out with pain in the epigastrium, but there was no tenderness on pressure and the pain was intermittent, not lasting long. She had slept four hours in the night. Tracing No. 1 shows the character of the pulse and was the best that could be got. She was ordered to have five figs boiled and the soup from them given in tablespoonfuls every four hours, with water if she wished during the intervals. On the 30th she did not sleep but the pain was less severe. She had had three pints of water and had vomited two pints of the greenish fluid, darker than before, which was coloured no doubt by the fig soup. She was more cheerful and hopeful. Something like an enlarged appendix could be felt in the right side of the abdomen. There was no flatulence. The urine was normal. She was ordered to have five figs stewed, the juice to be concentrated to a teacupful and given every four hours.

On July 1st the patient said that she had not slept in the night but had lain and talked to herself, which surprised her. She had had a scanty yellow motion with some black pieces in it and had brought up very little fluid since the previous day. She said that she had pain after the fig juice but had vomited nothing since she had it at 8 o'clock in the morning. She was ordered to have ten prunes stewed and their juice, alternately with that of the figs, at intervals of four hours as before. Tracing No. 2 shows the pulse. On the 2nd she had slept for five hours in the night. The prune juice had caused her more discomfort than the fig juice. She looked much better and could sit up. There had been a motion in the morning which was thin and smelt badly. At noon she sucked the juice from some onions which had been cooked till they were sweet. She was ordered to have the prune and fig juice mixed and to take it alternately with the onions every four hours.

On July 3rd she had slept for three hours in the night. She was said to have been very bad at 2 A.M. and could not speak. Four ounces of whey were given at 1 P.M. and this was ordered to be continued every four hours with one date between. On the 4th there was no complaint of weakness in the night. There was no motion or flatus passed and fæces could be felt in the left side but no distension. Fulness was still felt about the region of the appendix. She was ordered to have eight ounces of whey every four hours and a date with it. She looked much better. On the 5th she had slept for four hours in the night and had had a motion which was hard and dark in colour. On the 6th she had slept for two hours in the night. There had been a copious motion at 6 A.M., the hard portions of which were still dark in colour, while the soft portions were yellow.

On July 7th she had a soft motion which was more

FIG. 1 (CASE 1).

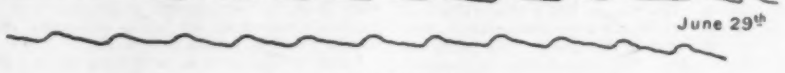
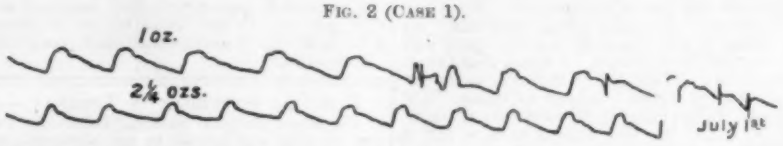


FIG. 2 (CASE 1).



natural-looking and she had no complaints to make. She had eaten 18 dates since the day before without pain and had slept for five hours in the night. At noon half a teacupful of wheat-meal and malt pudding was given. The patient was up in the afternoon and walked into another room where she sat for an hour. From this date she continued to move about and to exercise herself in the house. On the 11th she weighed 4 stones 10 pounds 4 ounces, she being a tall woman. On the 21st she went to the country and was walking about the road making good progress. Her nurse having left and her sisters having taken her in hand I left off attendance.

CASE 2.—The patient, a man, aged 29 years, had always been delicate. In January, 1904, his medical attendant said that he had Bright's disease. His legs were swollen and pitted on pressure. He had a cough but did not spit. He was able to get up a little while every day. There was some dulness on the right back and the respiratory sounds were better heard over the right than the left back. There was no dulness in front. He was fairly well nourished but the skin was pale. He took the usual food. The bowels sometimes were loose and at other times were confined. The urine looked turbid, frothed, and had a sweetish smell. He passed over two pints in 24 hours (specific gravity 1010) with one-fourth of albumin depositing when tested by nitric acid. He was not able to sleep well.

On June 17th he began to have only stewed rhubarb at 8 A.M. and 3 P.M. No. 1 tracing shows the pulse. On the 18th he said that he had slept better. On the 21st he said that he was having much better nights and was neither hungry nor thirsty on the rhubarb alone and he had now no cough whatever. On the 28th No. 2 tracing shows the pulse. There was much less swelling in the legs and he was sleeping well. Onions and grape nuts had been added to his dietary. The bowels acted regularly and there was only one-eighth of albumin in the urine. In spite of the improvement his mother would not continue the restricted diet and I did not see him again.

FIG. 1 (CASE 2).

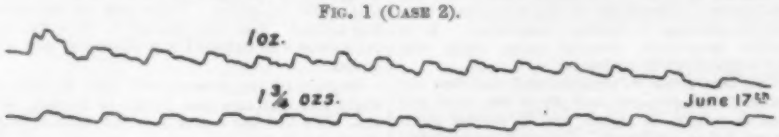
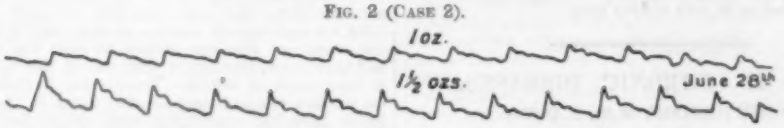


FIG. 2 (CASE 2).



CASE 3.—The patient, a man, aged 41 years, was a neurasthenic who felt at times as though he would go mad. He had visited hydropathic establishments of different kinds without any permanent benefit. For many years he had suffered from repeated attacks of pain in the stomach and vomiting. His bowels had been generally constipated and had required either medicine or an enema to move them. Insomnia had been a prominent symptom. On Oct. 21st, 1904, being 5 feet 8½ inches in height, he weighed 8 stones 13 pounds 2 ounces in his clothes. His tongue had a thin white coat except round the edges. His tonsils were enlarged and there was a redness all over the back of the throat. His pulse was 52, with considerable tension. The heart sounds were normal. Fæces were felt in the left side of the abdomen. There was no distension, the clearest note being on the right side. He was depressed mentally and physically but was fairly well nourished, his ribs being well covered. A hymn would come into his head which he could not get rid of and he would get into a state of what he called "mental excitation" and wished to be alone. He had noises in his ears like a cataract, with a whistle at times. He was ordered to have half a teaspoonful of China tea infused in a pint of water for ten minutes at 9 A.M. and to have nothing except water at other times, taking as little as possible except at 6 A.M., when he was to drink a pint in bed. On the 22nd he had slept from 11 P.M. till 2 A.M. He felt stupid when he awoke and his eyes were sore, as though they would drop out, and he could not bear the light. He had pain after drinking the water at 6 A.M. and some mouthfuls of frothy bitter fluid came back. He passed no urine till rising at 7 A.M. and then 130 cubic centimetres of a high colour and of specific gravity 1030. Acute pain was felt after taking the tea at 9 A.M. and there was some giddiness. He worked in the garden during the day at weeding. His head felt queer and he was giddy. Some frothy stuff came up after drinking water. Flatus passed at night. During the day 130 cubic centimetres of urine were passed, of specific gravity 1030, and it deposited about one quarter of urates. He thought that he had retained over half a pint of water since he had the tea. On the 23rd he had slept from 11 P.M. till 2 A.M. He had been dreaming a great deal. There was less depression than on the previous morning and he was a bit stiff in the legs from working in the garden. The tongue was furred and had not the smooth coat which it previously had. The amount of urine passed in the night was 620 cubic centimetres; it was clear, with a specific gravity of 1010. Bitter fluid still came up and he felt full, as he always did, in the epigastrium. He walked for three hours, climbing a high hill. The physical depression was less at the top of the hill than when he started. He again walked from 7 P.M. to 9 P.M. and felt a bit tired. He said that he had had less depression, both physical and mental, than usual and that in the evening his mouth was watering and had no bitter taste in it and he felt as if a crust of bread would taste good. The amount of urine passed during the day was 360 cubic centimetres, of specific gravity 1020, and clear. His weight was 8 stones 10 pounds 12 ounces

On Oct. 24th he had slept from 11.30 P.M. till nearly 6 A.M. There was no pain after taking the water in the morning and very little returned. The urine passed in the night amounted to 365 cubic centimetres and was of specific gravity 1014. He refused to take the tea and on wishing to know his reason he said that it was a stimulant, that it removed the mental depression, and he was determined to take nothing in the shape of drugs. He took the hot water alone. He had more distension in the stomach from water alone than from the tea. The tongue now was not furred and looked cleaner than at first. He worked in the garden all day. At night he felt fairly well. Nothing returned when he drank. The urine passed during the day amounted to 1250 cubic centimetres, with a specific gravity of 1005. His weight was 8 stones 9 pounds 14 ounces. The bowels were moved by enema; the fæces were dark and foul-smelling but not hard. On the 25th he had slept well in the night till nearly 7 A.M.; during the night he had passed 900 cubic centimetres of urine, of specific gravity 1004. His weight was 8 stones 7 pounds 6 ounces. There were little, if any, mental depression and no feeling of physical depression. He left to visit some relatives, saying that he would be careful as to food.

I make no comment on such cases but put the facts before the profession, hoping that they may tend to the study of diet, not only in such cases but in all diseases, and that other facts may be accumulated for future guidance.

Denholm, N.B.

HOSPITAL SATURDAY IN TORQUAY.—As a result of the recent Hospital Saturday collections in Torquay the sum of £195 was handed to the authorities of the Torbay Hospital. This is the largest amount which has ever been received for this fund in Torquay.

CORNWALL COUNTY NURSING ASSOCIATION.—In response to the appeal of Lord Mount Edgcumbe on behalf of the funds of the Cornwall County Nursing Association, the sum of £184 has been promised annually in subscriptions, leaving an additional income of £100 which is still required to place the association on a sound financial basis.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

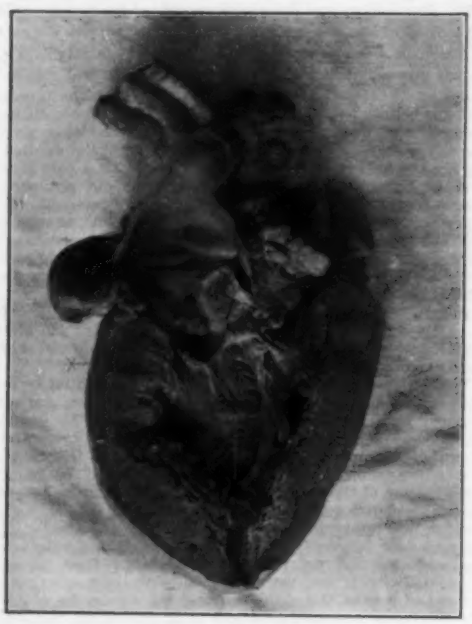
NOTE ON A CASE OF DOUBLE STENOSIS OF THE AORTIC ORIFICE.

BY THEODORE SHENNAN, M.D. EDIN., F.R.C.S. EDIN.,
PATHOLOGIST TO THE ROYAL INFIRMARY, EDINBURGH, ETC.

THE case of double stenosis of the aortic orifice published in THE LANCET recently,[1] brings to my mind an analogous case which Dr. H. G. Langwill and I described with an illustration in the *Scottish Medical and Surgical Journal*.[2] It is referred to at some length by Clifford Allbutt as a "subvalvular constriction" in his article on Diseases of the Aortic Area of the Heart in his "System of Medicine."[3]

The main points of the case are as follows. The patient was a male, aged 19 years. There was no history of rheumatism or scarlet fever. He was poorly developed and pale; there was no œdema or cyanosis; marked clubbing of the fingers was present. As regards the circulatory system there were marked episternal pulsation, a marked systolic thrill to the right of the middle line in the first and second intercostal spaces, and a "blowing" systolic murmur in the mitral area, becoming louder on auscultating up the sternum to the aortic area, so as to become audible five inches from the chest wall. The patient died suddenly.

Necropsy.—This was performed hurriedly, the heart only being removed and sent to me for examination. Nothing



A portion of the wall of the left ventricle is removed and the aorta laid open. The fibrous ring is indicated by the pointer. Just above it are the thickened aortic cusps.

of importance was found in the auricles or right ventricle. The walls of the left ventricle were hypertrophied. Some of the columnæ were fibrous, evidently from old endocarditis. On passing the finger up towards the aorta it passed through a fibrous ring—0·7 inch in diameter—about one inch below the aortic opening. This was continued on to the ventricular surface of the inner mitral cusp. In this position and extending upwards from the ring on to the lower surface of the left posterior aortic cusp was a narrow band of comparatively recent vegetations. These covered the lower surfaces of all the aortic cusps, which also were thickened and contracted, the diameter of the opening being 0·7 inch. The aorta was dilated slightly at its commencement but in the upper part of the descending aorta was only 0·6 inch in diameter. The fibrous ring was apparently the result of an old endocarditis.

The condition is well seen in the accompanying illustration. The specimen now forms specimen No. 89 of Series 36 in the Museum of the Royal College of Surgeons of Edinburgh and is fully described in the Catalogue, Vol. III.

Edinburgh.

[1] THE LANCET, Nov. 19th, 1904, p. 1417.
[2] Scottish Medical and Surgical Journal, vol. i., 1897, p. 723.
[3] Allbutt's System of Medicine, vol. v., p. 919.

A NOTE ON THE OCCURRENCE OF FILARIA IN FIJIANS.

BY G. W. A. LYNCH, M.B., B.C. CANTAB., M.R.C.S. ENG., L.R.C.P. LOND.,
RESIDENT MEDICAL SUPERINTENDENT, COLONIAL HOSPITAL, SUVA, FIJI.

DURING a period extending over 13 months the blood of 608 pure Fijian natives was examined at the Colonial Hospital. In every case specimens of the blood were taken both by day and by night and examined shortly after they were prepared. The natives whose blood was examined were from every part of this group of islands and really comprised all the Fijians who were admitted to hospital during the period of observation—adults and children, males and females; but adult males form the majority, because there are always fewer females and children in the hospital admission lists. Of the 608 cases examined filaria embryos were present in 156, or 25·65 per cent. In 125 specimens of blood taken by day and 136 specimens taken by night embryos were present, and 105 cases showed them in both day and night specimens; so that 31 cases showed filaria in their night specimens only and 20 cases in their day specimens only, or 5·09 per cent. and 3·28 per cent. respectively. The embryos examined were similar to those of filaria nocturna in all cases but one, and though in some cases it could be said that where found in both night and day specimens the embryos were in increased numbers in the former, this was by no means always so; indeed, in some the very opposite conditions prevailed and it was frequently noted that the number of embryos was about equal in the blood examined by day or night. The one exception noted was that of a female patient from the province of Lau in the Windward part of the group, whose blood showed undoubted embryos of filaria perstans; this was found on all the occasions on which her blood was examined. These patients were, of course, admitted to hospital for all kinds of disease; but some were admitted for the acute febrile attacks which are of common occurrence in Fijians who are filarial; there were 16 of these in all. These attacks of "fever" are so common amongst the natives that they are not as a rule in the habit of seeking hospital assistance for this complaint. 15 cases were admitted for abscesses of various parts of the body which had resulted from the lymphatic swellings also common in filarial subjects, and in all these cases the embryos were found in the blood. Four cases of inflamed glands in the axilla or the groin were admitted in the period under notice, which were also of filarial origin and showed embryos in the blood. (In this connexion it may be noted that of course no account is taken of the large numbers of ordinary abscesses or inflamed glands due to other ascertained causes.) During the period of observation 13 cases of advanced elephantoid enlargements either of the scrotum or other parts of the body were admitted; of these 11 showed no embryos in their blood but two showed them without any doubt whatever. In all 119 females were examined; 21 cases showed embryos in both night and day specimens and four in night specimens only; 489 males were examined, so that 21 per cent. of women were infected and 26·78 per cent. of men; the difference may be accounted for by the much smaller number of women examined. Only eight cases of children under 13 or 14 years of age were examined and these in no instance showed any sign of disease.

The accompanying table shows the various provinces of Fiji from which these cases came.

Province.	No. of cases examined.	Cases in which filariæ were found.	Per-centage.	Remarks.
Rewa	48	9	19·56	River delta.
Tailevu	60	19	31·66	Coast and high land.
Ra	20	4	20·00	Ditto.
Ba	16	4	25·00	Ditto.
Nadroga	20	6	30·00	Ditto.
Serua...	25	3	12·00	Ditto.
Naitasiri	12	1	8·33	Inland.
Colo East, West and North ...	26	8	30·76	Mainly high land.
Cakaudrove ...	34	8	23·52	Mainly inland and coast.
Lomaiviti... ...	107	22	20·56	Inland archipelago.
Bua	31	16	51·61	Coast and high land.
Macuata	14	3	21·42	Coast and high land.
Lau	105	24	22·85	Archipelago.
Kadavu	76	27	35·52	Island.
Namosi	5	0	—	Mainly high land.
Unspecified ...	11	2	19·18	—
Total ...	606	156	25·65	—

Making due allowance for differences in the numbers from the various provinces, it appears that the prevalence of this disease is about equally great in all parts of the group; it does not seem possible from the table to say that it is found more in the coast provinces than those inland. As a matter of experience, however, most of those patients who come from essentially inland provinces live in those parts of such provinces which have a fringe of sea coast.

Colonial Hospital, Suva, Fiji.

A NOTE ON A CASE OF BILHARZIAL WORMS IN THE PULMONARY BLOOD IN A CASE OF BILHARZIAL COLITIS.

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THE following facts are, I think, worthy of publication for two reasons: first, bilharzia hæmatobia has never before been seen in the blood of the lungs; and, secondly, the condition here named "bilharzial colitis" is not sufficiently recognised as a cause or concomitant of certain "dysenteric" symptoms.

The patient was a male Egyptian of uncertain age, probably about 35 years old. Clinically the disease was diagnosed as dysentery as all the symptoms pointed unmistakeably (as was thought) to this condition. But the post-mortem examination revealed a totally different state of affairs. The small bowel was normal except for the presence of about 100 ankylostomata. The colon and rectum were pale pink, the mucous membrane was swollen and velvety with a very few superficial abrasions, but universally raw in appearance and covered with a fair amount of mucus. The wall of the large bowel was somewhat thickened and its muscular coat was œdematous and hyaline in appearance. There were none of the ulcers characteristic of dysentery. Very numerous bilharzial ova were present in the mucous membrane of both the colon and the rectum. It seems most probable that the marked dysenteric symptoms in this case were due to the irritation of the innumerable bilharzial ova which were present in the mucosa of the gut.

As to the presence of the bilharzial worms in the body the facts were as follows. 22 worms (males) were found in the portal blood but the most interesting point is that two worms, a male and a female in the act of copulation, were found in the blood of the left lung. Ova of bilharzia have been recorded[1] in the tissue of the lung, but, so far as I am aware, no one has hitherto seen the living worms in the pulmonary circulation. I do not care to speculate as to how these worms got to the lung but I venture to refer to the fact that bilharzial worms are often found in the veins around the urinary bladder and in the small vessels about the rectum and that the blood from the whole vesical plexus of veins and part of that from the hæmorrhoidal plexus are poured *vid* the internal iliac vein into the *systemic* circulation, so that a worm coming from either of these situations would have open to it a direct channel through the right heart to the lungs.

Cairo.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

EVELINA HOSPITAL FOR SICK CHILDREN.

A CASE OF CONGENITAL STENOSIS OF THE LOWER END OF THE ŒSOPHAGUS; WITH REMARKS.

(Under the care of Dr. T. R. C. WHIPHAM and Mr. C. H. FAGGE.)

A LITTLE girl, aged four and a half years, was taken to the Evelina Hospital as a medical out-patient on August 7th, 1903. Her mother was in an asylum and, as her father could not look after her, the child had been handed over to the care of a woman "whose lodger knew the child's family." The history given by this woman was that the child had vomited immediately after food for at least three and a half years and was believed to have done so all her life. The vomiting occurred after nearly every meal with occasional intervals of one or two days. There was never any difficulty in swallowing but the food was rejected as a rule within a very short time of being ingested. If the vomiting did not occur almost immediately the food was invariably retained. No difference was noticed between fluids and solids, though it was observed that the latter, if not properly masticated, were generally returned. Milk and biscuits were said to be sometimes retained and sometimes rejected, but on the whole porridge was kept down best of all. The bowels acted regularly. There had never at any time been hæmatemesis or any symptoms pointing to a cerebral lesion. The child herself had had only measles two years previously and there were five other healthy children in the family.

When first seen the patient had a somewhat pallid aspect and was much emaciated, the eyes being sunken and surrounded by dark rings. Her weight was only 15 pounds 12 ounces. The tongue was covered with a slight brown fur. The abdomen was flat and fæcal masses were felt in the descending colon, but nothing abnormal could be found. Examination of the chest likewise gave no abnormal signs. She was ordered cod-liver oil and malt, compound liquorice powder, and ten-grain doses of the subnitrate of bismuth. No improvement followed. Vomiting occurred as a rule after the medicine and every few mouthfuls of food, though occasionally milk, &c., were retained, with the result that at the end of a week the child had lost six ounces in weight. The treatment was continued and an improvement followed, porridge being kept down well twice a day and the medicine retained. Thus at the end of the second week the weight had increased to 19 pounds 7 ounces. The improvement however was only temporary, for the child again began to lose ground. The vomiting became more marked and, though the oil and malt were fairly well retained, at the end of the next six weeks she turned the scale at only 17 pounds 8 ounces. The bowels continued to act regularly. The history of the vomiting was confirmed by feeding the

[1] See Birch-Hirschfeld's Pathologische Anatomie, Zweiter Band, 1. Hälfte, 1894, p. 550.

child with milk and bread-and-butter in the out-patient room. She ate and drank readily and swallowed without difficulty, but generally after taking three or four mouthfuls she would stop and say she was going to be sick without apparently having any feeling of nausea. A "pumping" action, like that seen in dogs, then began and after a few seconds the food returned undiluted except by saliva and without any acid reaction. At times after a drink of milk or a coloured solution had been retained she was given some bread-and-butter, which was immediately returned without any of the previous fluid, thus proving that the solid food had never entered the stomach. After vomiting the child would eat again quite readily without any feeling of discomfort or nausea. A diagnosis of œsophageal pouch was at this time adhered to, though at first a suspicion that the case might be one of criminal starvation was entertained. The frequent demonstration of the vomiting, however, put the latter out of court.

By the courtesy of Dr. W. Soltau Fenwick a bed in the hospital was obtained for the child and she was taken in on Oct. 14th after nine weeks' out-patient treatment and watched by Dr. Whipham. She was given a full diet with such extras as cream, Brand's essence, and ginger-bread nuts. The appetite was good and the child retained fluid food well but, with only occasional exceptions, was sick after her solid meals, though curiously the ginger-bread, of which she was very fond, was invariably retained. Various changes in the nature and quantity of the food administered were tried, but the result was always the same and at the end of a month after admission her weight had only increased by four ounces. Nutrient enemata in addition to oral feeding were tried for a time, but had to be discontinued after a fortnight on account of intolerance of the rectum. During this time, however, the weight had gone up to 16 pounds 12 ounces. The child's general health continued satisfactory, the only drug exhibited being liquorice powder for the relief of constipation.

Examination under anæsthetics by means of bougies and the x rays on different occasions led to a modification of the diagnosis of œsophageal pouch. The passage of a moderate-sized bougie was arrested at the lower end of the œsophagus, while a No. 2 or 3 catheter passed readily into the stomach. Experiments with the x rays on catheters containing soft wire confirmed this fact, for the smaller tubes were seen to enter the stomach, while the larger ones were arrested about two inches above the diaphragm. One soft catheter threaded with very flexible annealed wire was found to be reflected at this point and that a considerable dilatation of the œsophagus above existed was shown by the distance between the descending and ascending portions of the catheter. That the condition was not one of a diverticulum seemed now evident. The vomiting came on immediately after meals and not after an interval and there was no dysphagia; moreover, there was never any swelling in the neck, which is the constant position of congenital œsophageal pouches, their site being at the end of the pharynx. A traction pouch due to adhesions to an inflamed mediastinal gland seemed also out of the question, for these, as a rule, are small and cause no symptoms. Above all, the passing of the œsophageal tubes pointed to a true stricture, for the smaller invariably entered the stomach, while the large were stopped as described above. A diagnosis of that rare condition, congenital stenosis of the lower end of the œsophagus, was consequently made and this, as subsequent events proved, was the correct one.

As the child had made no real progress with careful dieting during her six weeks' stay in the hospital a consultation was held towards the end of November as to the advisability of surgical interference, so on Nov. 23rd, with the patient under chloroform and aided by the x rays, Mr. Fagge passed gum elastic catheters containing fine wire stylets (sizes 2 and 3) through the stricture. Larger sizes without stylets were tried without the use of force but could not be guided through the stricture, though if softened by hot water they were seen to curl up above it.

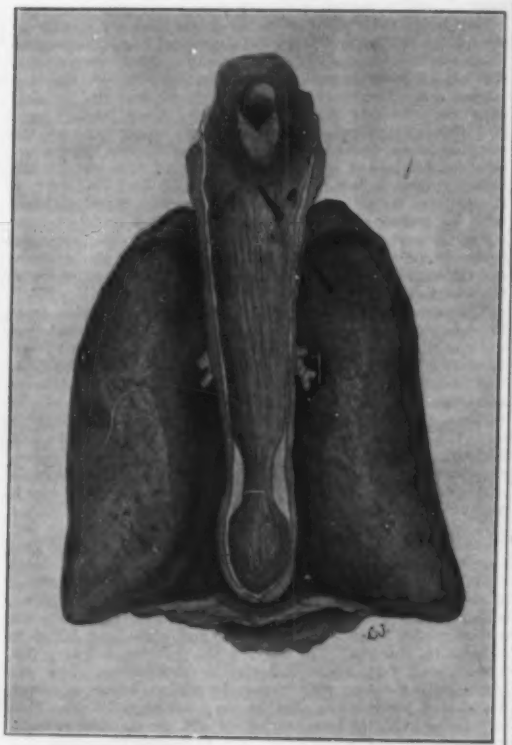
Messrs. Down Bros. were then instructed to make a series of gum elastic catheters of the usual sizes with centrally placed round terminal openings into which fitted the bulbous end of a fine wire. This was passed through the catheter and was of such a length as to pass well beyond its upper end. The object of this was that the smaller catheter might be withdrawn, leaving the stylet *in situ*, over which a larger sized catheter could then be passed through the stricture guided by the stylet.

On Dec. 4th the patient was again anæsthetised on the x-ray couch and a very small Killian's œsophagoscope was passed, but when this reached the pharynx it impinged on to the posterior wall at about the level of the fourth cervical vertebra, and as it was felt that it could not be passed further without undue force it was withdrawn. A No. 2 catheter, with a fine flexible wire stylet ending in a bulbous point as described above, was then passed with ease and was seen by the x-ray screen to have passed into the stomach. The catheter was then withdrawn, the wire stylet remaining *in situ*, and gradually larger catheters were passed over the stylet until a No. 11 had been introduced. The larger sizes were allowed to remain in the œsophagus for several minutes before being withdrawn so as to dilate and not merely to stretch the stricture. During the passage of these instruments there was no sense of great obstruction which necessitated the use of force to push the catheters on; in fact, only the largest size introduced was gripped at all and the greatest care and delicacy were exercised in their introduction. Nor during their passage through the upper part of the œsophagus was there any sense of any resistance being overcome and followed by free movement of the end of the catheter, such as would have been caused by its escape into the cellular tissue outside the œsophagus. Each catheter with its contained wire stylet was "screened" while in the stomach, and frequent observations were made with the screen in an attempt to determine the length of the stricture and the distance of its lower end from the cardiac orifice of the stomach.

The patient was taken back to bed, but on recovering from the anæsthetic swelling of the right side of the neck was noticed during the next two or three hours, which spread steadily and rapidly to the left side and up on to the face. The swollen parts crepitated under pressure and were somewhat painful when touched. The child was very restless and the breathing became laboured. By the next day the emphysema had spread over the thoracic and abdominal walls and the temperature began to rise, respiration was more embarrassed, and the heart's action was rapid and weak. The general condition was much worse and it was only too evident that during the attempts to dilate the stricture the œsophageal wall had been unfortunately perforated. During the following two days (Dec. 6th and 7th) the subcutaneous emphysema varied slightly in amount from time to time, but delirium, cyanosis, and intense abdominal pain, which was only relieved by morphine, supervened. Four Southey's tubes were inserted into the subcutaneous tissues of the neck and chest but failed to relieve the tension. On the 7th the patient was very distressed and had much difficulty in swallowing. She was continually retching and frequently vomited brown material. Continued stimulation was of no avail and she died that afternoon with a temperature of 104·8° F. Her weight, taken three days before death, was 19 pounds 12 ounces.

Necropsy.—At the post-mortem examination the body was found to be fairly well nourished. The subcutaneous tissues were much distended with emphysema which extended from the face over the thorax and abdomen, the right side of the neck and face as high as the supra-orbital ridge being the parts most affected. The upper part of the œsophagus was dilated and at a point three-quarters of an inch below the level of the bifurcation of the trachea there was a sudden narrowing of the calibre, the tip of the finger just entering a circular ring which partially yielded to quite moderate pressure. On slitting up the œsophagus the stricture was seen to be of a fibrous nature and quite half an inch in length (see illustration). In appearance it was white, thick, semi-translucent and firm, and quite unlike the remainder of the œsophageal wall, which was such as is usually seen. The stricture terminated one and one-third inches above the cardiac orifice of the stomach and the lower end was as sharply defined as the upper. The terminal portion of the œsophagus below the stricture was also somewhat dilated. On the right side a little below the epiglottis there was a small perforation through all the coats leading into the surrounding loose cellular tissue. One inch below this there was a small laceration of the mucous membrane and just above it were two symmetrical oval patches one on either side of the lumen where the mucous membrane had been slightly injured. There was no evidence throughout the œsophagus of any old traumatism, erosion, or ulceration. From the perforation a large septic track containing air and a small quantity of offensive grumous fluid, probably food, led down into the mediastinum, which was also infected.

The right pleura was the site of a large pneumothorax. It contained a few ounces of yellowish fluid and was covered by an adherent layer of lymph. No evidence of perforation of the pleura was found. The lung was collapsed and airless. On the left side there were numerous petechial hæmorrhages under the pleura which presented a little lymph and contained a small quantity of fluid. The left lung was normal. The pericardium contained a slight excess of fluid and loose shreds of lymph around the base of the heart. The heart itself was normal. The stomach showed advanced post-mortem digestion and tore easily. There was no peritonitis or lesion



Œsophagus laid open from behind, showing the position and extent of the stricture. A rod is passed through the perforation. From a drawing by Mr. Lawrence Jones.

of the abdominal viscera beyond several small subperitoneal hæmorrhages over the surface of the liver. The condition of the œsophagus was the only abnormality present in the body.

At the post-mortem examination it was considered that the bare bulbous-ended wire stylet had produced the hole which did not seem large enough to have admitted any of the catheters. Unless the same instrument had passed into the cellular tissue and wounded the pleura, the occurrence of the pyo-pneumothorax is not explained, but the pathologist (Dr. R. P. Rowland) could find no evidence of an injury to the parietal pleura near the hole in the œsophagus.

Remarks by Dr. WHIPHAM and Mr. FAGGE.—Congenital malformations of the œsophagus of any kind are but seldom met with. Records of individual cases are found scattered over the literature but the text-books dismiss the condition in a few lines. Briefly speaking, these abnormalities may be devided into—

1. Congenital absence of the whole œsophagus—a very rare condition.[1]

2. Bifurcation of the œsophagus with junction of the two parts towards the lower end.[2] Of this condition we only know of one recorded instance.

3. Congenital atresia in which the œsophagus is divided into two parts—the least rare of all the varieties. As a rule, in these cases the upper end, which is continuous with the pharynx, ends blindly in a more or less expanded cul-de-sac, while the lower opens above into the trachea or one of the bronchi and below in a normal manner into the stomach. The two segments of the gullet may be connected by a fibrous or muscular band.[3] Much more rarely there is no opening of the lower part into the air passages, the two blind ends being merely joined by a fibrous cord.[4] In connexion with the upper cul-de-sac pressure pouches are sometimes formed. The obliteration of the œsophagus in such cases is stated to be a secondary process occurring opposite the diverticulum from which the lower part of the trachea and the lungs are developed.[5] It will be remembered that the epithelial lining of the larynx, the trachea, and all the air passages are derived from a diverticulum which arises immediately below the epiglottis from the ventral wall of the foregut.[6]

4. Pressure pouches which occur in the median line posteriorly are thought by some to be of congenital origin and to have become gradually dilated by the passage of hard food. That such exist during fœtal life is unlikely, especially as symptoms are not generally noticed till age is well advanced, or may be entirely wanting and the condition only discovered at the necropsy.

5. Stricture caused by a fold of mucous membrane projecting into the lumen of the tube, like a diaphragm (*a*) at the upper part of the œsophagus immediately below the pharynx or (*b*) near the lower end. The symptoms of such lesions are in most cases not manifested till the patient has reached middle or advanced life, and it has been suggested that the condition is due to a contraction—possibly reflex in origin—of the muscularis mucosæ or of the circular muscular coat. That some of these cases are possibly congenital in origin, however, seems likely from the three instances quoted by von Ziemssen,[7] in all of which dysphagia had been noticed since childhood. One was a case under the care of Everard Home,[8] that of a female, aged 46 years, who died from lack of nourishment owing to increased difficulty in swallowing, caused by a uniform circular contraction of the mucous membrane at the entrance of the œsophagus, the appearance of which was normal. The second, recorded by Cassan,[9] was that of a man, 77 years of age, who, although suffering from some dysphagia all his life, had only marked symptoms during his last year, when ulceration in the mouth, caused by a silver toothplate, had extended downwards into the œsophagus. A circular ring of mucous membrane with a puckered edge was found in the upper part of the gullet and below this a narrow canal, eight millimetres long, in which the mucous membrane was cast into longitudinal folds. The third, which was reported by Zenker, occurred in a woman, aged 66 years, who died from carcinoma of the pylorus. In the upper part of the œsophagus was a circular contraction, over which the mucous lining was pale, delicate, and freely moveable on the submucosa.

6. Stenosis of the lower end of the œsophagus, cases like our own. Such a condition seems to be excessively rare and after searching through the literature we have only been able to find records of six cases that are at all analogous. The earliest is mentioned by Blasius,[10] but of the details nothing is known beyond that there were two strictures at the lower end of the œsophagus with a curious saccular dilatation between them. Cruveilhier[11] figures a stenosis extending down to the cardiac orifice of the stomach but merely says that the case in many respects resembled that of Cassan mentioned above. In the dilated portion of the œsophagus above the stricture were numerous polypoid vegetations. Wilks[12] gives a fuller account of a man, 74 years of age, who died from pneumonia. He had had difficulty in swallowing and regurgitation of food since childhood and at the necropsy the lower portion of the

[1] Morell Mackenzie: Diseases of the Larynx and Œsophagus, 1894.
[2] Blasius: Observata Medica Rariora, 1674, Table vi., fig. 2.
[3] Two typical instances of this malformation, with records of other similar cases and remarks as to their origin, will be found in a paper by Ilott in the Transactions of the Pathological Society, vol. xxvii., p. 149.
[4] W. Thomas: THE LANCET, Feb. 6th, 1904, p. 361. Birmingham Medical Review, February, 1904, p. 83.
[5] Shattock: Transactions of the Pathological Society, vol. xli., p. 87.
[6] Keith: Human Embryology, 1902, p. 249.
[7] Cyclopædia Medica, vol. viii., p. 18.
[8] Practical Observations on the Treatment of Stricture in the Urethra and in the Œsophagus, 1821, vol. ii., p. 398.
[9] A more detailed account of this case will be found in Cruveilhier's Anatomie Pathologique, livr. xxxviii., p. 1.
[10] Observata Anatomica, 1674, p. 120, Table xv., fig. 6.
[11] Loc. cit., Plate vi.
[12] Transactions of the Pathological Society, vol. xvii., p. 138.

œsophagus was found to be stenosed, the lumen scarcely admitting the little finger. Above the stricture the œsophagus was hypertrophied and dilated. Hilton Fagge[13] records a somewhat similar case in a man, aged 64 years, though in this instance no dysphagia was noticed till after 40 years of age. The lower end of the œsophagus presented a stricture on the upper part of which a recent epithelioma had arisen. The rest of the gullet showed hypertrophy and dilatation. In this case at least Fagge seemed inclined to the belief that the stricture was spasmodic in origin. F. C. Turner's case[14] was an infant, aged 18 months, who died from inanition. At the lower end of the œsophagus, involving the cardiac orifice, there was a tight stricture which just allowed a No. 2 catheter to pass. There was no other malformation.

A more recent case was described by B. H. Rogers[15] who has kindly furnished us with some additional details. The patient was a male infant, one year and ten months old, who began to suffer from frequent vomiting about a year previously. The condition became rapidly worse and was accompanied by emaciation. A soft bougie was passed on several occasions into the stomach, for the tip came up acid, but on others it curled up on meeting the stricture. Most of the food entered the stomach but part seemed to be retained in the œsophagus and it was sometimes several hours before it was returned. Attempts at diagnosis by means of the x rays were not fortunate. The child was fed on sponge cake mixed with carbonate of bismuth but no recognisable shadow could be seen. The patient died from bronchitis and at the post-mortem examination a fairly tight stricture was found about an inch from the lower end of the œsophagus. The child's weight was 16 pounds 9 ounces.

The rarity till now of congenital lesions of the œsophagus causing stricture seems fully established by our researches into medical literature, but it remains for time to prove whether they are so uncommon as the paucity of recorded cases tends to show. Now that attention has again been drawn to the condition by Rogers's and our own case it may well be that accounts of other cases will be forthcoming. Until a comparatively short time ago congenital hypertrophic stenosis of the pylorus was an unknown condition, but many instances of this lesion have been recorded during recent years and operative treatment has been undertaken with a fair amount of success. It is, perhaps, not too much to hope that with improved methods of diagnosis cases of congenital stenosis of the œsophagus may be earlier recognised and that operative skill may effect their alleviation, for we cannot but think that such cases are not so few and far between as the records indicate. At all events, it is desirable that as many instances as possible should be recorded, so that an adequate explanation of their origin may be arrived at and definite lines for surgical treatment laid down, for hitherto efforts in this direction have been entirely unsuccessful. It may be that stricture at the commencement of the œsophagus is caused by excessive narrowing of the fore-gut where it contracts to form the gullet, as it has been shown by Balfour and Meuron that in most vertebrates—mammals excepted—at a certain period of development the lumen of the œsophagus becomes for a time completely obliterated at its upper extremity, and even in the human embryo at an early stage the cervical portion of the œsophagus exists only as a column of hypoblastic epithelial cells, which later becomes channelled.[16] If we accept the usual theory of the development of the œsophagus it is difficult to explain the stenosis of its lower end. Is it possible that our knowledge of the development of the alimentary canal is still incomplete and that further investigations in this direction are required?

In the reports of the different cases recorded here and in the references obtained from the different indices and catalogues in the library of the Royal College of Surgeons of England and elsewhere we can find no discussion or opinions on the surgical treatment of congenital stricture of the œsophagus. In cases like ours, where the stricture is low down, it seems that the alternatives are dilatation with bougies and gastrostomy, for division of the stricture must be regarded as too risky a procedure and electrolytic treatment as doubtful in efficiency.

Experience of gastrostomy in children for stricture of the œsophagus following corrosive inflammation is not entirely satisfactory, the local irritation of the skin and other discomforts making life for the child almost unbearable, so here as it had already been possible to introduce a small bougie we decided in consultation that dilatation with bougies was more rational and probably likely to succeed, as the stricture did not seem either long or very inelastic. It was proposed to dilate further to a 15 size catheter and it was hoped that after this the occasional passage of a full-sized bougie would maintain a sufficient opening. Otherwise, as it would be impossible to insure frequent dilatation with bougies for a prolonged period in a hospital child we decided to resort to gastrostomy if a rapid relapse followed. There is no doubt, as was fully demonstrated by the post-mortem examination, that anything like satisfactory and lasting dilatation of the stricture with bougies would have been impossible and that had the child lived gastrostomy would have been inevitable.

[13] Guy's Hospital Reports, Series III., vol. xvii., p. 413.
[14] Transactions of the Pathological Society, vol. xxxvi., p. 185.
[15] British Journal of Children's Diseases, September, 1904, p. 350.
[16] Keith: loc. cit.

VICTORIA HOSPITAL FOR SICK CHILDREN.

A CASE OF PRECOCIOUS LACTATION IN A MALE CHILD.

(Under the care of Dr. MONTAGUE MURRAY.)

FOR the notes of the case we are indebted to Mr. Robert M. McQueen, clinical assistant at the hospital.

The following case seems worthy of recording on account of this most unusual condition in a male child. The patient, a male child, aged three and a half months, was admitted into the Victoria Hospital for Sick Children on July 8th, 1904, under the care of Dr. Murray, for congenital morbus cordis from which he died on the 29th. On inspection, both breasts were found to be enlarged to about the size of half a billiard ball (the left being slightly larger than the right), the areolæ were prominent and well marked, and the nipples were enlarged in proportion to the size of the breasts. A fluid resembling milk was oozing from both nipples. On palpation both breasts were firm and a well-marked mass of gland substance with an irregular outline could be felt. There was neither pain nor tenderness. Two or three drops of this milk-like fluid could be squeezed from each nipple. The child was breast-fed and above the average size for his age, having the appearance of an infant of from ten to 12 months old; the head was well formed; the anterior fontanelle was nearly closed, and at death, three weeks after, was quite closed. The genital organs were normal; both testicles were in the scrotum and of about the size of large cob nuts, and the penis was large for the age of the child. The mother said that she noticed "that the child's breasts began to swell when it was five or six weeks old and had gradually got bigger." She had never rubbed them nor had there been any nipple-pulling and she had not noticed any swelling, pain, or tenderness of the breasts during the first week after birth. During the three weeks the child was in the hospital until he died nothing was done to arrest the secretion, the breasts continuing to increase in size and to secrete.

Necropsy.—A post-mortem examination was made and beyond evidence of congenital morbus cordis nothing was otherwise found. Both breasts on section fully bore out that they were lactating breasts, which they appeared to be during life; the gland substance was healthy and had every appearance of actively secreting glands; no cysts were present; there was no excess of blood, no injection, lymph, or œdema, or any sign of active inflammation. The ducts leading from the glandular substance were generally enlarged and irregular. Unfortunately microscopical sections were not made. The secretion was examined microscopically and was found to resemble milk, except that there were fewer fat cells; in each field of the microscope one or two colostrum corpuscles could be seen.

Remarks by Mr. MCQUEEN.—The diagnosis of the case lay between mastitis with spurious lactation and precocious lactation. Sheild says that swelling and hyperæmia associated with secretion of spurious milk are not uncommon and that the milky exudation which flows from the nipples of some infants is entirely due to disintegration of the central cells of the columnar epithelial masses of which the primary gland is formed. He also quotes the case of a female child 16 days old whose right breast was opened for an abscess. A milky secretion was seen issuing from the left breast. This secretion under the microscope resembled

maternal milk except that the latter contains more corpuscles.[1] That this case was not one of spurious lactation is borne out by the appearance of both breasts on section and the microscopical examination of the milk together with the absence of any tenderness, pain, or redness, or of any evidence of œdema or enlarged lymphatic glands; moreover, there was no history of irritation or injury and the breasts continued to enlarge and to secrete as long as the child lived. It seems probable that as the lactation did not begin until the child was five or six weeks old, it was not excited by a primary mastitis, a condition not infrequently found in infants a few days after birth. In further favour of this argument we find other evidences of precocious development in the unusually large sexual organs and the closure of the anterior fontanelle (*vide* illustration). There are several cases recorded of

The illustration is reproduced from a photograph which was taken a few days before the child died after considerable wasting of the tissues had occurred, but shows the mammary enlargement, especially the right breast, and the abnormal size of the external genital organs.

developmental precocity in female children. In one, a female child had great enlargement of the mammæ and menstruated under two years of age.[2] But I can find no mention of precocity of lactation similar to this instance, which, together with the fact that it occurred in a male child, seems to lend an additional interest to the case.

[1] Diseases of the Breast, p. 57.
[2] Ibid., p. 59 (Meckel's Archiv für Anatomie, 1827).

OMDURMAN CIVIL HOSPITAL.

A CASE OF SWORD WOUND OF THE HEAD.

(Under the care of Mr. E. S. CRISPIN.)

THE patient, an Arab of fine physique, was admitted into the Omdurman Civil Hospital on Sept. 3rd suffering from a severe wound of the vault of the skull inflicted by a sword, with comminuted fracture and hernia cerebri. The injury had been inflicted on the night of August 31st, so that nearly three days had elapsed before admission; the first dressings had been applied by a native barber. The man performed the journey in a boat and was carried to hospital on his bed.

On admission there were signs of fairly free hæmorrhage, the patient was conscious but lethargic, his pupils were even and reacted to light, he had no obvious paralysis, and seemed in no particular pain. He had no incontinence of urine or fæces, was constipated, and his urine was drawn off by a catheter for the first 24 hours. He was unable to answer questions but seemed to understand when spoken to. The wound commenced about an inch over the left eyebrow and continued in a curved direction over the left parietal bone to about one and a half inches from the left occipital protuberance where it again took a sharp curve round towards the left ear. The total length of the wound was six and a half inches and its width in the centre was one and a half inches. The greater part of the left parietal bone was elevated half an inch; a quantity of brain substance, which was sloughing, protruded.

Immediately on admission the head was shaved, the

FIG. 1.

Reproduction of a photograph of the patient's head taken lying in bed on Sept. 10th.

wound was explored and some splinters of bone were removed, and clean dressings were applied; no attempt was made to bring the edges of the wound together on account of the sloughy condition of the brain and the elevation of the parietal bone. The accompanying illustration (Fig. 1)

FIG. 2.

Reproduction of a photograph showing the condition of the head on leaving the hospital ten weeks after admission.

gives some idea of the condition of the wound some days after admission. There was no pus in the wound but a

copious discharge of cerebro-spinal fluid was present. A few days after admission there was some œdema of the eyelids and Mr. Crispin prolonged the incision downwards about half an inch and discovered a bead of pus; a fine gauze drain was inserted in this corner of the wound and a tight capeline bandage was applied, the œdema disappearing in a few days.

For 25 days the man remained in this lethargic condition, unable to speak; at the end of this time, in answer to a question, "How are you?" he answered "Taiib," which means "All right." But on trying him further, with "What is your name?" or "Put out your tongue," his answer was still, "Taiib." His friends put similar questions to him but the same answer was given to all. This peculiarity of speech lasted for 15 days more, during which time it was difficult to make him understand things. He had to be told several times to put out his tongue or to shut his eyes but eventually did it all right. At the end of this time—that is, about Oct. 13th—more than six weeks after the infliction of the injury, he began to answer questions properly but very slowly, hesitating and stammering over them as though trying to remember a lesson; he used to hesitate even in giving his own name. From this date, however, there continued a steady improvement. He never had any apparent weakness in his grip or loss of movement anywhere. The part of the cortex that sloughed away must have been the centres for the head, eye, and arm to a great extent. The patient was altogether ten weeks in hospital and left with no other sign of injury than the scar.

Remarks by Mr. CRISPIN.—I think this case is worth recording on account of the enormous extent of the injury resulting in complete recovery with practically no surgical interference. It is improbable that a European would have survived this injury, but a native, with his less susceptibility to pain and shock and his fine constitution, frequently recovers in what at first sight appears a case of fatal injury. It will be interesting to hear whether the patient later develops epilepsy, as so often occurred in cases of bullet wound of the brain during the South African war which apparently at the time made marvellous recoveries.

The second illustration (Fig. 2) shows the extent of the scar on discharge from hospital. Both photographs were very kindly taken for me by Mr. Türstig and Father Ohrwalder of Omdurman.

Medical Societies.

OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Election of Officers.—Fatal Lepto-meningitis.—Exhibition of Specimens and Instrument.—Tinnitus.—Internal Ear Deafness.—Cerebral Abscess.—Restoration of Hearing after Removal of Drum and Ossicles.

THE fifth annual meeting of this society was held on Dec. 5th, 1904, Dr. THOMAS BARR being in the chair.—The following officers were elected:—President: Dr. Thomas Barr. Vice-Presidents: Mr. A. E. Cumberbatch, Mr. John B. Story, and Mr. E. Cresswell Baber. Honorary Treasurer: Dr. Edward Law. Honorary Librarian: Dr. Herbert Tilley. Honorary Editor of "Transactions": Dr. W. Jobson Horne. Council: Dr. Urban Pritchard, Dr. Arthur L. Whitehead, Dr. A. Logan Turner, Mr. Arthur H. Cheatle, Mr. Richard Lake, and Mr. Ernest B. Waggett. Honorary Secretaries: Mr. Hugh E. Jones and Mr. P. Macleod Yearsley.

An ordinary meeting of the society was then held.

Mr. A. E. CUMBERBATCH read notes of a case of Fatal Lepto-meningitis following upon acute suppurative otitis media of influenzal origin. The antrum and sulcus lateralis were explored by the usual radical operation. A small quantity of pus was found in the antrum but none in the sulcus or on the upper surface of the tegmen tympani. No symptoms of any kind, except a rise of temperature to 106° F., followed the operation. At the necropsy purulent lepto-meningitis was found but no direct connexion between it and the focus in the temporal bone could be traced. Mr. Cumberbatch asked the opinion of members as to whether anything further could be done in such a case.—Dr. WILLIAM MILLIGAN said that draining the subarachnoid space might afford relief.—Mr. C. A. BALLANCE pointed out that in many of these cases the pus lay between the pia mater and the brain and that it was then practically impossible to drain away the pus but that occasionally where there was a localised collection of pus between the arachnoid and the dura mater it was possible to obtain a good result by operation. Mr. Ballance also remarked that meningitis occurred in influenza independently of an ear disease.—Dr. J. DUNDAS GRANT referred to the recent paper of Lermoyez, in which he advocated repeated lumbar puncture in the treatment of otitic meningitis.—Mr. HUGH E. JONES described two cases which illustrated Mr. Ballance's remarks; extensive removal of bone and multiple punctures of the pia mater had failed to drain the pus or to prevent extension of the suppuration.

Dr. ALBERT A. GRAY demonstrated by means of lantern slides the following specimens: (1) the Human Membranous Labyrinth, showing an accessory ampulla in the horizontal canal and supernumerary otoliths or calcareous deposits in the labyrinth; (2) the Membranous Labyrinth of the Seal, showing the large size of the organ and the large otoliths; (3) a section of the Cochlea of the Mouse; (4) a section of the Organ of Corti of the Mole, showing the spiral arrangement of the nerve termination at the base of the hair-cells; and (5) a section of the Cochlea of the Guinea-pig. In reply to a question Dr. Gray said that his method of preparing the labyrinth was described in the *Journal of Anatomy* two years ago.—The PRESIDENT, Dr. URBAN PRITCHARD, Dr. MILLIGAN, Dr. W. JOBSON HORNE, and Mr. P. MACLEOD YEARSLEY discussed the specimens.

Mr. RICHARD LAKE exhibited an Oto-masseur driven by a Turbine (Ash).

Dr. E. FURNISS POTTER read notes of a case of Severe Tinnitus, with almost complete loss of hearing, in a male, aged 21 years. Drug treatment had proved valueless. Dr. Potter asked for advice as to whether operative measures should be adopted—e.g., removal of cochleæ or division of auditory nerve.—An interesting discussion followed in which the speakers appeared to be unanimously of opinion that the tinnitus being diffuse and not "referred" to the ears, and there being an absence of any precise knowledge of the cause of the tinnitus, operation was not justifiable.

Mr. ARTHUR H. CHEATLE read notes of a case of Internal Ear Deafness of sudden onset. The patient, a middle-aged female, noticed loud noises in her ears after she had been yawning seven or eight times. The "noises" lasted from 20 to 30 minutes, when she found that she was deaf in the left ear, and it had a "dead feeling." There was no giddiness. The deafness had remained and occasional "noises" were heard. Examination of the ear revealed nothing beyond marked nerve deafness.—The case was discussed by Dr. MILLIGAN, Dr. DUNDAS GRANT, and others.

Dr. A. L. WHITEHEAD read notes of a case of Acute Cerebral Abscess occurring in a boy, aged 14 years, who had suffered from double otorrhœa for 12 months. He was seized with acute headache lasting 24 hours and coma lasting three hours. Both middle ears were filled with pus and granulations. The radical operation was performed with subsequent exploration of the temporo-sphenoidal lobes on both sides. The result was negative but 36 hours later pus and sloughing brain material were evacuated on the right side and recovery followed.

Mr. CHARLES J. HEATH read a paper (founded upon an experience of 400 operations) on the Restoration of Hearing after Removal of the Drum and Ossicles by a modification of the radical mastoid operation for suppurative ear disease.—This paper was published in THE LANCET of Dec. 24th, 1904, p. 1767. Its discussion was adjourned to the next meeting.

CHELSEA CLINICAL SOCIETY.—A meeting of this society was held on Dec. 20th, 1904, Dr. T. Vincent Dickinson, the President, being in the chair.—Dr. R. L. Bowles read a paper on the Treatment of the Apparently Drowned, with a Practical Demonstration of the Best Methods of Resuscitation. The method advocated by Dr. Bowles was a modification of that originally introduced under the name of Dr. Marshall Hall, for whom in 1856 Dr. Bowles and others had carried out a series of experiments on the dead body. The three points chiefly insisted on by Dr. Bowles and now amply demonstrated by dissections on the dead body, by experiments on living animals, and by the experience of actual cases of drowning are the following: 1. That fluids are drawn into the lungs by the efforts at inspiration and that it is the presence of fluid in the lungs which is in most cases

the immediate cause of death in drowning. 2. That the prone position is the only one that can be relied on for emptying the lungs of fluid and that this process of emptying the lungs must, on account of the inspissated character of the fluid from the admixture of blood, mucus, and saliva, be continued throughout the whole period of treatment. 3. That more air can enter the lungs through the aperture of the pharynx with the mouth shut than with it open. The method advocated by Dr. Bowles consisted of three separate movements. The first movement was to place the patient in the prone position and to employ firm but gentle pressure on the back of the ribs for three or four seconds. The pressure must then be suddenly removed to allow the entrance of air on the recoil of the ribs. In this position the tongue fell forward, leaving the entrance to the windpipe free for air to enter the lungs and fluid to leave them. The second movement consisted in grasping the patient's left shoulder and rolling him on to his right side. This movement should be repeated every two seconds for about ten minutes. In this position the heart was left free and the liver did not press down on the heart and lungs. The third movement, which was to be employed if natural respiration had not been induced by the second, was an amplification of the latter. Instead of returning the patient at once to the prone position, the left arm was raised above the head until it was in a line with the body and brought back again to the side before the prone position was resumed. This movement assisted the expansion of the chest and allowed the air to enter the left lung more freely. These movements should be continued for an hour or until signs of natural breathing began.

WINDSOR AND DISTRICT MEDICAL SOCIETY.—A meeting of this society was held on Dec. 21st, 1904, Mr. J. Brickwell, Vice-President, being in the chair.—Dr. George F. Johnston read a paper on the Nature of Hysteria. Arguing from the fact that hysterical patients can do without sleep for a very considerable period without suffering much from the lack of it, he suggested that the explanation of this might be that part of the brain of such patients was really asleep, or in a condition allied to sleep, all the time. He then alluded to cases of prolonged sleep, of trance, of ambulatory automatism (which he distinguished from post-epileptic automatism, giving examples of each to illustrate his meaning), and to cases of dual consciousness, all of which conditions he considered to be manifestations of hysteria and due to a partial or complete condition of sleep, affecting more or less continuously the whole or separate parts of the central nervous system. He further argued that such a condition would suffice to explain almost all, if not all, the manifold symptoms of hysteria. In order to do this, however, it was necessary to assume that the sleeping cells might be very few and it must also be recognised that higher and lower cortical centres, basal ganglia, cerebellar cells, and cells in the medulla and spinal cord might all be subject, separately or in combination, to this peculiar condition of abeyance of function or abnormal sleep. From this it followed that a "rousing" method of treatment should be adopted for hysteria. Hence the value of electricity, especially faradisation. He suggested as a definition of hysteria "a condition of instability of the nervous system in which certain groups of cells or combinations of groups of cells are liable to fall into a state of abeyance of function or sleep, leaving subordinate centres to act automatically and uncontrolled."—A discussion followed to which Mr. J. W. Gooch, Mr. W. J. Handfield Haslett, Mr. T. G. Drake, and Dr. G. E. Hale contributed.—The proceedings terminated with a vote of thanks to Dr. Johnston for his valuable and interesting address.

Reviews and Notices of Books.

The Life of Richard Wagner. By WILLIAM ASHTON ELLIS. London: Kegan Paul. 1904. Vol. IV., pp. 537. Price 16*s*.

THIS is the fourth instalment of a voluminous biography written by a member of our profession. Mr. Ellis is an enthusiastic devotee of the Wagnerian cult and the reader will find evidence in every page of painstaking research. The period covered in this volume is barely two years—viz., 1853 to 1855—of the composer's life. Wagner was born in 1813. At the age of 19 years he wrote a symphony (his first composition having been an overture which was performed in 1830) and his first work for the operatic stage was *Die Hochzeit* in 1833. It was not till 1842 that the more generally known operas began to appear. Thus *Rienzi* was performed in 1842, *The Flying Dutchman* in 1843, *Tannhäuser* in 1845, and *Lohengrin* in 1850. From the first he was his own librettist and he always devoted considerable time to the writing of the "poem" which he intended to illustrate in "tone-colour."

In the volume under notice we have the history of his beginning the music of his *magnum opus*, "*Der Ring des Nibelungen*," the poems of which he had been elaborating since 1845. There is an interesting description of the discovery, owing to Mr. Ellis's careful investigations, of the fair copy of the poem of the Dresden *Siegfried's Tod*, written in the composer's own handwriting as a "revise" a few months after the original MS. of 1848. It had been given by Wagner to his friend Sulzer as a "keepsake," but the recipient died in 1897 and his family were unaware apparently that such a treasure was in their possession. (*Siegfried's Tod* is now generally known as *Götterdämmerung*, the fourth part of *Der Ring*, the first three parts being *Das Rheingold*, *Die Walküre*, and *Siegfried*. Though in four parts, the whole work is alluded to as a "trilogy," *Das Rheingold* being considered the prologue.) In 1853 Wagner, an exile from his country (on account of supposed connexion with political intrigues), was living at Zürich. It was there that the first "Wagner Festival" took place. With considerable difficulty he got together an orchestra capable of performing selections from *The Dutchman*, *Tannhäuser*, and *Lohengrin*. A week before the concert he gave readings of the "poems" to a "freely invited and non-paying audience," so anxious was he to demonstrate the close connexion between music and words (Chapter III.). This festival was a great success from a musical point of view but the composer was depressed, physically and mentally, as is shown by his letters to Liszt and others. The loneliness of expatriation worried him, overwork was causing insomnia and lassitude, and financial difficulties added to his worries. Thus to Liszt he writes on May 30th, 1853: "I am very tired and knocked up"; and to Roeckel on June 8th of the same year, in speaking of his intentions for the future, "I have to gird up all my strength and health—which often is very ailing—to carry out the musical composition of my Nibelungen dramas." In another letter to Liszt he sums up his temperament in the following words: "I can live in nothing but extremes—the greatest activity and excitement and the most perfect calm."

What was the precise nature of Wagner's disabilities? We learn from the book before us, first, that he was the subject of a hernia "that necessitated the wearing of a truss (never properly adjusted according to the statement of his last physician)"; secondly, there was nerve-strain—"undiagnosed eye-strain," Mr. Ellis considers it to have been, and this is also the opinion of Dr. G. M. Gould.[1] For his neurotic symptoms he was recommended a sojourn in St. Moritz and thither he went in July, 1853. But he did not derive much benefit therefrom, for he wrote: "I'm too restless to be able to abstain for long from all activity; in short, I am no 'cure' subject—I have found out that—now I'm burning to go to Italy." And to Italy he went—a hurried visit—for he returned to Zürich in September, complaining of "loneliness," insomnia, and consequent "melancholy." He was longing to resume the composition of *Das Rheingold*; abstention from work was apparently more trying to him than the overwork which had produced his illness. Thus in January, 1854, he writes to Liszt: "During this work I often felt quite well; the storm

[1] Biographic Clinics, vol. ii. See also THE LANCET, August 1st, 1903, p. 305, and March 7th, 1903, p. 672.

clouds seemed to have wholly cleared." And a few weeks later his letters are full of despondency and longing for death. He lived, however, for nearly 30 years after that date. His visit to London to conduct for the Philharmonic Society took place in February, 1855. Particulars of this will form part of the next volume but it may here be recalled that his reception was anything but enthusiastic. His work was ironically termed the "music of the future" by most of the critics, but there is no denying the fact that his admirers and worshippers are now legion, and to them this detailed biography will prove most interesting.

Pathological Technique: a Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By FRANK BURR MALLORY, A.M., M.D., Associate Professor of Pathology, Harvard University Medical School; First Assistant Visiting Pathologist to the Boston City Hospital; Pathologist to the Children's Hospital; and JAMES HOMER WRIGHT, A.M., M.D., Director of the Clinico-Pathological Laboratory of the Massachusetts General Hospital; Instructor in Pathology, Harvard University Medical School. Third edition, revised and enlarged. With 156 illustrations. London and Philadelphia: W. B. Saunders and Co. 1904. Pp. 469. Price 13*s.* net.

THAT three editions and a reprint should have been called for in seven years sufficiently attests the value set upon this work in the United States. Apart from this, however, anyone acquainted with recent American writings on pathology must have remarked this appreciation, as references to, or extracts from, the work of Mallory and Wright are to be met with constantly. The scope of the book is extensive as it deals with the practical methods employed in morbid pathology, histology, and bacteriology. Indeed, the work goes beyond what is indicated in the title, for not only is the technique of laboratory methods described but, in some cases at least, the deductions to be drawn from the observations are discussed. It could only be by a rigid selection of such methods as have proved of distinct service in practical work and by cutting out all antiquated or unpractical matter that the subject could be treated within the limits of what is, after all, only a book of moderate size. As might be expected from the authors, the selection of methods is judicious and the whole treatment of the subject is such as to leave but minor points open to criticism.

The book is divided into three parts, treating respectively of post-mortem examinations, the technique of bacteriology, and the methods used in pathological histology. The instructions for the performance of necropsies are eminently practical, though some suggestions are not entirely suitable to English conditions. In the bacteriological section we notice that the preparation of agar is still spoken of as troublesome but most of the difficulties in filtration disappear with the proper use of the autoclave and of suitable filter paper, so that agar will filter as quickly as gelatine. Protest must be made, too, against the use of the term "superheated" as applied (p. 89) to the steam in the autoclave, as there is risk of a fundamental misconception since "superheated" steam has not the sterilising value of "saturated" steam. The steam in the autoclave is in this latter condition. Among Gram staining organisms the bacillus œdematis maligni is not usually grouped. One of the new methods introduced into this edition is Hill's "hanging block method" which does not seem to have any advantages over that described by Professor S. Delépine some years ago. The section dealing with special bacteriology is well arranged, clearly written, and the object of the book is kept clearly in view.

In Part III. several new methods are described, including one by Dr. Wright for embedding and manipulating frozen sections of small fragments of tissue. This appears likely to prove of considerable value to those who have to deal with scrapings and curettings of organs for diagnostic purposes. For the determination of the hæmoglobin in blood the method of von Fleischl is alone given, no mention being made of Haldane's hæmoglobinometer which is the instrument usually employed in this country. A new blood stain has been devised by Dr. Wright which claims to be an improvement on those of Leishman, Jenner, and Ehrlich on the grounds that it is more easily and simply made while it possesses all the differential staining properties of these stains with the easy fixation associated with the methyl alcohol method. It should prove a valuable addition judging by the illustrations showing films stained in this way. There is also a new method by Dr. Mallory for neuroglia fibrils. Short accounts of inoscopy and cytodiagnosis have also been introduced.

The book is illustrated with woodcuts and numerous reproductions of photographs, some of which are taken from well-known works but many of which are original. With regard to these latter, while we recognise their excellence we cannot see the advantage of the excessive magnification (× 2000) employed. The microscopist rarely sees his specimens, at least in English laboratories, under a greater magnification than from 600 to 1000 diameters, and these highly magnified figures are therefore somewhat misleading while they lose at the same time the sharpness of definition which could be obtained with a lower power. There is a very fine reproduction of a segmenting malarial parasite in an unstained blood film. The book is well printed and does credit to the publishers.

The Röntgen Rays in Therapeutics and Diagnosis. By WILLIAM ALLAN PUSEY, A.M., M.D., Professor of Dermatology in the University of Illinois; and EUGENE W. CALDWELL, B.S., Director of the Edward N. Gibbs X-ray Laboratory, New York. Second edition, revised and enlarged. London and Philadelphia: W. B. Saunders and Co. 1904. 8vo, pp. 690. Price 21*s.* net.

THE full and favourable reviews which this work received on the issue of the first edition in 1903 make it unnecessary to describe it now at any great length. As was said then, this work is probably the best that has been published on this subject in the English language. The arrangement is the same as formerly. The first part is written by Mr. Caldwell and deals with x-ray apparatus and its use in diagnosis. It has been brought up to the date of going to press in January, 1904. The chapter on the choice of an x-ray outfit will be of the greatest value to those intending to take up this fascinating line of work. The whole of this section is very well done. The description of the various apparatus and practical methods is very clear and the numerous illustrations will be found of the greatest help to those whose experience has not been very extensive.

The second section is by Dr. Pusey and deals with the effects of the x rays on living tissues and the application of these effects in the treatment of disease. The changes produced in normal tissues form a proper opening to this section. These, both macroscopic and microscopic, are described in detail. Then follow the changes produced on diseased tissues and also on bacteria. Various methods of technique are fully described and in this chapter the special appliances necessary for x-ray therapeutics are indicated, including protections against the undesired effects of the x rays on both patient and operator. After dealing with the indications for the use of the x rays the author proceeds with the treatment of special diseases. At first sight Dr. Pusey's results in the treatment of cutaneous carcinoma are very startling. It is a fair criticism, however, that many of the cases which he records as "cutaneous carcinoma" would be regarded in this country as rodent

ulcer. After making due allowance for this the author's results will be found to correspond practically with those obtained in this country. A valuable feature of this chapter is that the reports of the cases mentioned in the first edition have been brought up to date. On the whole, the results are encouraging. The author, while careful not to advise the substitution of the x rays for excision in operable cases, approves of the use of the rays as a prophylactic. This is a matter of very great importance and it is earnestly hoped that the use of the x rays after operation for malignant disease will be practised more generally and that recurrences will be less frequent. The work is thoroughly to be recommended. It is printed in clear type on good paper and the illustrations are numerous and excellent.

Les Rayons N et les Rayons N_1. (The N Rays and the N_1 Rays.) By Dr. H. BORDIER. With 16 figures. Paris: J. B. Baillière et Fils. 1905. Pp. 95. Price 1 franc 50 centimes.

THIS is one of a long series of similar small manuals and deals with the Blondlot rays, sometimes called the "n" rays because Professor Blondlot, who discovered these rays, is a professor in the University of Nancy. Their discovery goes back to March, 1903, when Professor Blondlot whilst endeavouring to polarise the rays emitted by a Crookes's tube, found rays beyond the ultra violet, which rays, he stated, pass through aluminium, do not exhibit fluorescence, and, unlike the x rays, can be refracted. According to Professor Blondlot, these rays are emitted by a Welsbach light, a Nernst lamp, the sun, and even non-luminous bodies in a state of strain or compression—e.g., wood or steel. They are said to increase the intensity of a small flame. Many regard this increased luminosity as a subjective phenomenon due to a physiological change in the eye itself. An account is also given of those marvellous statements of Professor Charpentier that nerve and muscle in action emit these "n" rays and that the rays thus emitted affect a small luminous flame, making it more brilliant. In England, at least, not much credence is attached to the experiments of Professor Charpentier in this regard. The treatise is quite an elementary one and until verification of the phenomena which it describes is complete it is not likely to attract much attention on the part of medical readers, more especially as many physicists doubt even the existence of these much-belauded rays.

Biological Chemistry of Muscle and Nerve. Ten Lectures by W. D. HALLIBURTON, M.D. Lond., F.R.S. (Published under the authority of the University of London.) London: John Murray. 1904. Pp. 160. Price 7s. 6d. net.

THESE excellent lectures are the outcome of two courses of lectures, one delivered in New York in January of last year by their author as the first Herder lecturer and the other delivered in the University of London. Three pages are required to set forth the titles of the principal researches published by the author or in conjunction with colleagues or carried out under his superintendence. The earliest paper dates from 1883 and the lectures may be taken as a *résumé* of the subjects with which they deal and the contributions made thereto by the author and his pupils. The real keynote of our knowledge of muscle proteids was struck by Willy Kühne in 1864. Since then detail upon detail has been added and theories have been retracted. Kühne also by using the muscular part of the diaphragm showed that the red colour of the so-called red muscles is due to the presence of hæmoglobin. Four lectures are devoted to muscle—its composition, heat rigor, pigments, nucleo-proteids, ferments, extractives, and salts. This forms the chemical side, while in Lecture V. we find a short account of the chemical changes accompanying the contraction of muscle and the chemistry of tendon. The remaining five lectures deal with the nervous system under the following heads: chemical composition, metabolism, coagulation, temperatures of nerve proteids and its relation *inter alia* to hyperpyrexia, the chemistry of degenerative nervous diseases, and the degeneration and regeneration of nerves. The author regards the regeneration of nerve fibres as due to an outgrowth from the nerve cell and opposes the view of Bethe and others of auto-regeneration of nerve fibres. The white substance of Schwann is regarded as formed in relation to the axis cylinder and not by mesoblastic cells. Throughout the author has given full credit to those who have been his pupils and also to those who assisted him in actual experimentation. His joint researches with Dr. F. W. Mott and Dr. T. G. Brodie are set forth in an instructive form. Most of the results have already appeared either in text-books or lectures, so that there is no need to refer to the subjects in detail.

Atlas der deskriptiven Anatomie des Menschen. (Atlas of Descriptive Human Anatomy.) By Dr. Med. J. SOBOTTA, Extraordinary Professor and Prosector of Anatomy and of the Institute of Anatomy at Würzburg. Second fasciculus. The Viscera, including the Heart. With 19 coloured plates and 187 illustrations (some in colours) from originals by K. HAJEK (Artist). Munich: J. F. Lehmann. 1904. Pp. 169. Price M.16.

Grundriss der deskriptiven Anatomie des Menschen. (Essentials of Human Anatomy.) Second fasciculus. By the same Author. Pp. 155. Price M.3.

THE atlas is the second volume of Dr. Sobotta's Atlas of Descriptive Human Anatomy and the descriptive letterpress appears as the second volume of Essentials of Anatomy by the same author. We have already noticed the previous issue of the same work and this one is in every respect similar to its predecessor. The atlas comprises 19 coloured plates and 187 figures besides. These are devoted to the viscera. The digestive tract stands first in order, the illustrations of the temporary, permanent, and developing teeth being particularly numerous, no less than 20 figures being devoted to this part of the subject. The salivary glands and the thyroid are illustrated in the same lavish manner. The usual views of the constrictor muscles of the pharynx appear and call for no remark. A very successful representation of the mutual relations of the œsophagus, trachea, bronchi, and great arteries is found in Fig. 302. The illustrations of the stomach, liver, spleen, pancreas, and kidneys are more or less familiar, being on the lines of the models by His. There are some good semidiagrammatic representations of the peritoneal reflexions and some figures showing the development and folding of the alimentary canal. The thorax is treated in a similar way to the abdomen and the plates which represent the right and left views of the mediastinum after removal of the lungs appear very useful. There is nothing very new in the illustrations of the pelvic viscera and the heart. The atlas is a good and painstaking production whilst the descriptive volume is accurate but by no means exhaustive.

Report on the Preparation of "Rinderpest Protective Serum." By ALFRED LINGARD, M.B., M.S. Durh., D.P.H. Cantab. Calcutta: Government Printing Office. 1904. Pp. 42.

AS bacteriologist to the Government of India Dr. Lingard has had exceptional opportunity for studying the question of the value of different sera against the ravages of rinderpest in cattle and his report is a summary of the results arrived at up to the present time. Dr. Lingard acknowledges much valuable assistance received from Captain G. K. Walker and Captain J. D. Holmes of the India

Civil Veterinary Department. The bile method of Koch was found to confer an active immunity lasting from two to five months, the bile of from three to seven animals being required to protect each hundred animals operated upon. Its action is not curative. The immunising effect of the bile injection begins on the fifth day and is not complete until the tenth day. It is curious to note that immunity against the disease by the use of rinderpest bile can be conferred upon plains bovines and plains and hill buffaloes, but not on the hill breeds of cattle. Edington's bile method can only in equivalent doses give a passive protection for a very limited period, as glycerine destroys the "contagium" of rinderpest. The injection of virulent blood after the injection of bile fails to prolong the period of protection already afforded. The injection of a quantity of fortified serum on one side of the animal's body and a small quantity of virulent rinderpest on the opposite side confers a considerable immunity and the serum has the following advantages over bile: it is cheaper, it can be prepared in large quantities, it can be kept, and it will not communicate any other disease. The actions of defibrinated blood and serum in animals are similar but the disadvantages of the blood are that it will not keep, it can communicate other diseases, and a very large quantity is required; its only advantage is that it can be utilised when no serum is procurable. Dr. Lingard discusses fully the methods of preparation of anti-rinderpest serum, the susceptibility of cattle and buffaloes indigenous to India, and the period during which the anti-rinderpest serum will retain its protective power after exposure to various temperatures. In an appendix some 50 tabular statements of the actual details of the result of one or other of the different methods employed are given, the whole report showing in a very condensed form the result of much labour in the field of preventive medicine.

LIBRARY TABLE.

The Anatomy of the Brain: a Manual for Students and Practitioners of Medicine. By J. F. BURKHOLDER, M.D., Professor of Anatomy in the Illinois Medical College and the Illinois Eye, Ear, Nose, and Throat College; Professor of Physiology in the Dental Department of the University of Illinois and the Dearborn Medical College. With 86 full-page plates. Chicago: G. P. Engelhard and Co. 1904. Pp. 174. Price $2.—The short title of this book is misleading, the brain described being that of the sheep. This brain has been chosen as an example on account of the ease with which it can be obtained and its resemblance to the human brain. No doubt a student who conscientiously works through the dissections described will gain a very fair knowledge of the naked-eye anatomy of a brain, but from a medical and pathological point of view nothing can ever replace a practical acquaintance with the brain of man. The plates, most of which are from the author's own drawings, are excellent and very clear but we have found the letterpress very difficult reading. Owing to the mixed terminology the book is neither English nor Latin and the Latin needs extensive correction, many errors having crept in. The revision of the book appears to have been very imperfect.

Medical Annals and Report of the Hamidié Hospital for Children, Constantinople, 1903-1904. Fifth year of publication. Constantinople, 1904.—The fifth issue of the reports of this hospital contains matter in French, German, and Turkish. The hospital besides being used for children also treats wounded soldiers. Among the notable articles is a most interesting one, unsigned, concerning Hospitals in Islam, which gives an account so far as is possible of the celebrated one at Gondisapor which flourished in the eighth century. Dr. Salih Békir writes upon vesical calculus which is common in Turkey. He gives details of 20 cases that came under his care at the hospital in two years. Of the 20 patients one was a girl. All the calculi were under ten grammes in weight except two, one of which weighed 14 grammes and one 45 grammes. The last named occurred in a male child aged six years. He was at first treated by means of rest, a milk diet, and Kara-Hissar water, and under this regimen the cystitis, which had at first prevailed, diminished. A lateral lithotomy was performed on June 9th but the stone was found to be too big for extraction. On the 23rd the stone was removed by the suprapubic route. Some suppuration occurred but the child left the hospital on Sept. 19th completely healed and with no difficulty of micturition. The calculus was phosphatic.

Practical Nursing. By ISLA STEWART and H. E. CUFF, M.D. Lond. Edinburgh and London: William Blackwood and Sons. 1904. Pp. 432. Price 5*s.* net.—This admirable book was originally published in two volumes, the second of which appeared at some interval of time after the first published in 1899, and was reviewed in THE LANCET of Oct. 17th, 1903, p. 1099. The present edition is in one volume and, so far as we can remember, does not contain anything new. But the original edition was so excellent that practically nothing new was needed. We commend the book to all who have to do in any way with the care of the sick.

Practical Ambulance Tablets. By SYDNEY PARTRIDGE, M.D. Edin. Fifth edition. London: J. and A. Churchill. 1904. Pp. 71. Price 1*s.*—The continued demand for this little book is ample evidence of its merits. Dr. Partridge, who is an examiner and a lecturer to the St. John Ambulance Association, intends it to be a companion to the text-book of the association and it no doubt summarises very conveniently the chief points to be observed in the rendering of first aid. All the accidents and conditions described are urgent, hysterical unconsciousness excepted, and the directions given are intentionally very concise. A page or two might, however, have been devoted to advising rescuers as to their own protection when entering places filled with smoke or noxious vapours. There are eight pages of illustrations of conveyance of the injured, artificial respiration, and other kinds of first aid.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., ADAM SEDGWICK, F.R.S., W. F. R. WELDON, F.R.S., and SYDNEY J. HICKSON, F.R.S. With lithographic plates and engravings on wood. London: J. and A. Churchill. 1904. Vol. XLVIII., Part III. Price 10*s.*—The memoirs contained in this number of the journal are:—1. On the Existence of an Anterior Rudimentary Gill in Astacus Fluviatilis, by Margaret Moseley, with plates xxiii. and xxiv. 2. On the Development of Flagellated Organisms (Trypanosomes) from the Spleen Protozoic Parasites of Cachexial Fevers and Kala-azar, by Leonard Rogers, M.D. Lond., with one plate. Captain Rogers maintains that kala-azar is a severe form of malarial cachexia or cachexial fever. He depicts the divisional forms without development and the developmental forms which present themselves after development of one, two, three, and four days, and shows that the infection especially affects particular houses and is always extremely localised, removal to a new site half a mile distant proving successful in preventing the spread of the disease, which, he thinks, is effected by flies. 3. The Epithelial Islets of the Pancreas in Teleostei, by John Rennie, D.Sc., with three plates. He regards the islets as blood glands with internal secretion. 4. Observations on the Maturation and Fertilisation of the Egg of the Axolotl, by J. W. Jenkinson, M.A., with five

plates. 5. Notes on the Anatomy of the Gazelletta, by G. H. Fowler, B.A.

The Veterinary Journal.—In the December number of this journal we note that the paper is bidding farewell to Professor W. O. Williams, one of its editors, this gentleman having been appointed principal of the new Veterinary School in connexion with the University of Liverpool. The articles contributed include one on Natural and Conferred Resistance to Disease in the Animal Body, by Mr. Frederic Lewis, several clinical cases, numerous translations from the French and German periodicals, and a continuation of the article on Veterinary Toxicology by Colonel J. A. Nunn of the Army Veterinary Department.

Caledonian Medical Journal.—The opening article of the January number is a biography of Mr. Hector McColl of Tobermory in the Island of Mull, who was born in that island in 1799 and died in 1891. Dr. A. C. Miller, medical officer of health of Fort William, contributes a paper on Medico-legal Experiences in a Highland District; two of the fatal cases which he describes were due to attacks by infuriated cattle. Dr. David Rorie of Cardenden gives the puerperal history of a woman who, in eight pregnancies, had three times borne an anencephalic fœtus. One of the editorial paragraphs announces that the annual meeting of the Caledonian Medical Society will be held in Manchester next summer.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

CLINICAL THERMOMETERS (HALF-MINUTE OBSERVATION).
(JAMES J. HICKS, 8, 9, AND 10, HATTON-GARDEN, LONDON, E.C.)

SOME doubt has been expressed as to whether accurate observations of the temperature of the body may be made by employing quick-registering thermometers, limiting, say, the time of exposure of the thermometer to half a minute. The accuracy of the record depends upon the care with which the observation is made. It is well to bear in mind that in cold weather thermometers which presumably register the correct sub-lingual temperature by half-minute observations will take a longer time to register that temperature than when the external temperature is near the normal (60°F.). On the whole, however, the rapid-registering clinical thermometer will be found to record accurate results when certain simple precautions are observed. At least we have found such to be the case with a number of clinical thermometers (half-minute observation) sent to us by the above maker. These clinical thermometers possess the important advantage that the height of the column of mercury may be easily read owing to its magnification by the lenticular form of the capillary tube. In one experiment six thermometers, the temperature of the air being 63° F., were placed in a water bath at 102·4° for half a minute. The temperatures recorded by the six thermometers tested were respectively as follows: 102·4°, 102·2°, 102·4°, 102·2°, 102·4°, and 102·2°. The mean reading of the six thermometers was thus 102·3°, so that the greatest *minus* deviation was 0·1° and the greatest *plus* deviation 0·1° also. In the second experiment the temperature of the water bath was 96·8°. After immersion for half a minute the thermometers recorded the following results: 96·80°, 96·90°, 96·70°, 96·60°, 96·80°, and 96·75°. The mean result was 96·75° and the greatest *plus* deviation from the mean was 0·15° and the *minus* deviation 0·05°. Next the temperature of the body was taken by placing the thermometers under the tongue for half a minute. The readings were as follows: 98·1°, 98·2°, 98·0°, 98·3°, 98·0° and 98·0°. The mean was thus 98·10° and the greatest *plus* deviation from the mean was 0·2° and the greatest *minus* deviation was 0·1°. Next the thermometers were placed under the tongue of the same patient but for three minutes instead of half a minute. In all cases the column of mercury was reduced to just below 95° before the experiment was commenced. The results were as follows: 98·0° 98·1°, 98·1°, 98·1°, 98·0°, and 98·0°. The mean was thus 98·05° and the greatest *plus* deviation was 0·05° and the greatest *minus* deviation was 0·05° also. It will be seen that although the results in the three-minutes observation are closer than in the half-minute observation, yet for all practical clinical purposes the half-minute reading was as accurate as the three-minute reading. With quick-reading thermometers it is important that they should not be cold or below 60° F. before they are used. Observing these precautions it is evident from the above results that these thermometers are quite trustworthy for making clinical observations.

CREMANT DU ROI (SAUMUR VEUVE AMIOT).
(COCK, RUSSELL, AND CO., 36, GREAT TOWER-STREET, LONDON, E.C.)

We have on more than one occasion referred to the excellence of the sparkling wines produced in Saumur. There is no reason, we think, for regarding them as dietetically inferior to the wines produced in the Champagne district. The highly trained palate will detect a difference in the æsthetic qualities and that is all, but the majority of people would drink a good sparkling Saumur and find it just as pleasing as is a high-class and a high-priced champagne. Both the extra dry and the dry Crémant du Roi are excellent sparkling wines with the attractive character of a good champagne. The price is 45*s.* per dozen. On analysis the "very dry" specimen gave the following results: alcohol, by weight 12·38 per cent., by volume 15·30 per cent., equal to proof spirit 26·82 per cent.; extractives, 3·40 per cent.; mineral matter, 0·11 per cent.; volatile acidity reckoned as acetic acid, 0·18 per cent.; fixed acidity reckoned as tartaric acid, 0·65 per cent.; sugar, 1·90 per cent.; and ethers reckoned as ethyl acetate, 41·36 grammes per hectolitre. This is a pleasing, "clean" wine, free from volatile acid and containing a small proportion of sugar. The "dry" specimen gave the following results: alcohol, by weight 11·62 per cent., by volume 14·37 per cent., equal to proof spirit 25·18 per cent.; extractives, 4·37 per cent.; mineral matter, 0·11 per cent.; volatile acidity reckoned as acetic acid, 0·13 per cent.; fixed acidity reckoned as tartaric acid, 0·69 per cent.; sugar, 2·65 per cent.; and ethers reckoned as ethyl acetate, 48 grammes per hectolitre. The only important difference between the two wines is that implied by the distinctive terms "extra dry" and "dry," the latter having been liqueured a degree higher than the former. This is illustrated in the proportion of sugar shown in the analysis. Both are excellent sound wines.

CHELTINE MALTED MILK COCOA.
(CHELTINE FOODS AND CHOCOLATE, LIMITED, CHELTINE WORKS, CHELTENHAM.)

Our analysis of this preparation brought to light just the results which might be expected from the description given of its composition. It is made from cocoa, dried (full cream) milk, and a malted food. We found that nearly 40 per cent. of the food was soluble in cold water, while the fat amounted to 24·80 per cent., the proteid to 22·40 per cent., the mineral matter to 4·20 per cent., and the moisture to 6·75 per cent. It is practically free from unaltered starch. The above figures show this preparation to be a complete food and it follows from the particular method adopted in its preparation that it must be easily digestible.

BRANDIES (A. L. BOITEAU AND CO.)

(AGENTS: J. N. BISHOP AND SONS, 13, COOPER'S-ROW, CRUTCHED FRIARS, LONDON, E.C.)

We have received three specimens of brandy described respectively as Fine Champagne (ten years old), Brut Cognac, and Liqueur Fine Champagne (25 years old). They all give results consistent with the description that they are grape spirit distilled in the pot still. The specimen of Fine Champagne ten years old gave the following results: alcohol, by weight 41·90 per cent., by volume 49·40 per cent., equal to proof spirit 86·56 per cent.; extractives, 1·74 per cent.; and mineral matter, 0·02 per cent. The secondary products, given in grammes per 100 litres of alcohol present, amounted to as follows: volatile acidity reckoned as acetic acid, 24·00; aldehyde, 6·50; furfural, 1·00; ethers reckoned as ethyl acetate, 128·48; and higher alcohols, 100·00; total secondary products, 259·98. The specimen of Brut Cognac gave the following results: alcohol, by weight 40·25 per cent., by volume 47·62 per cent., equal to proof spirit 83·45 per cent.; extractives, 1·65 per cent.; and mineral matter, 0·01 per cent. The secondary products, given in grammes per 100 litres of alcohol present, were as follows: acidity reckoned as acetic acid, 90·00; aldehyde, 10·00; furfural, 1·25; ethers reckoned as ethyl acetate, 122·80; and higher alcohols, 104·20; total secondary products, 328·29. For a Cognac brandy described as "brut" the amount of extractives is somewhat excessive. The Liqueur Fine Champagne 25 years old gave the following results: alcohol, by weight 41·80 per cent., by volume 49·29 per cent., equal to proof spirit 86·37 per cent.; extractives, 0·29 per cent.; and mineral matter, *nil*. The secondary products, given in grammes per 100 litres of alcohol present, were as follows: acidity reckoned as acetic acid, 60·00; aldehyde, 10·00; furfural, 1·50; ethers reckoned as ethyl acetate, 126·60; and higher alcohols, 120·00; total secondary products, 318·10. Here we should have expected in a brandy described as 25 years old more extractive matters and less furfural. The results throughout, however, indicate genuine brandies—that is, grape spirit distilled in the pot-still—and their æsthetic qualities are satisfactory and such as support the interpretation placed upon the analytical results.

VINCIGLIATA ITALIAN WINE.

(MORISON, POLLEXFEN, AND BLAIR, 34, LEADENHALL-STREET, LONDON, E.C.)

On analysis this wine gave the following results: alcohol, by weight 10·08 per cent., by volume 12·49 per cent., equal to proof spirit 21·89 per cent.; extractives, 2·58 per cent.; mineral matter, 0·19 per cent.; volatile acidity reckoned as acetic acid, 0·02 per cent.; fixed acidity reckoned as tartaric acid, 0·28 per cent.; and sugar, 0·15 per cent. This is a red Italian wine with a peculiar aroma and flavour but it is quite acceptable to the palate. The wine was practically non-acid and free from sugar. We believe it to be a sound, wholesome wine and it evinces slightly less "body" than usually characterises wines of this class and nationality.

MALTOFF.

(D. LAWRENCE & SON, 34, HIGH-STREET, HOMERTON, LONDON, N.E.)

This sweetmeat is described as malted cream toffee, a description with which we have no fault to find in view of the results of our examination. The toffee contains extract of malt, cream, butter, and cane sugar. The materials are evidently of a pure description and we could find no evidence of metallic contamination. The flavour is good, the toffee tasting pleasantly of malt.

ARGEX FLUID BEEF.

(THE ARGEX FLUID BEEF CO., 5, STATION BUILDINGS, ACTON-STREET, HAGGERSTON, LONDON, N.E.)

According to our examination this fluid beef is something more than a mere extract of meat, for it contains albuminous principles which are precipitated on adding bromine. The precipitate was voluminous. On quantitative analysis the following results were obtained: moisture, 53·47 per cent.; solid matters, 31·65 per cent.; and mineral matter, 14·88 per cent. On the addition of alcohol a precipitate was obtained amounting to one-fifth of the weight of the preparation. Peptones were present and in the sediment meat fibre was recognised. This fluid beef is a concentrated preparation of some merit containing reparative materials as well as merely stimulating extractives. The flavour is good and free from excess of seasoning or salt.

New Inventions.

A NEW FORM OF INHALER.

THE inhaler shown in the illustration has been made for me in two sizes by Messrs. Arnold and Sons of West Smithfield, London, E.C., who have taken great pains in carrying out my wishes. It differs from the ordinary forms of Clover's inhaler in the following details:—The lid is removable, an arrangement which allows the interior of the body to be inspected and cleaned. The lid and the winged screw which fixes the lid are made of aluminium, which helps to reduce the weight. The lid lies on two indiarubber washers and when screwed firmly down forms with the top of the inhaler a watertight joint. The inner central tube has been made without the usual vertical partition, which diminished the airway by one half. By placing the windows of the inner tube near its upper extremity I find that the anæsthetic does not splash down the tube on to the face of the patient. The diameter of the central tube is one inch in the large and seven-eighths of an inch in the small inhaler and its windows are correspondingly large. The weight of the small inhaler

is 1 pound 5 ounces. The angle piece has a short nozzle and tap for attachment of the indiarubber tube from a nitrous oxide bottle. The bag is made of red indiarubber and is reversible. The stopper is made of thick hollow glass, its neck being surrounded by a piece of red indiarubber tubing which, unlike vulcanite, is not destroyed by the anæsthetic. The stopper plainly indicates the amount of anæsthetic in the reservoir. The body is cylindrical and made of plated copper. There are two face-pieces, one large and one small, made of aluminium with inflatable rubber rims; aluminium being flexible, the face-piece can be easily moulded to suit various types of face. The stopper is the only part likely to break, and then only if extreme violence is employed. It is easily replaced. The threads of

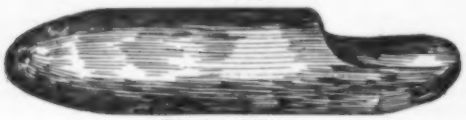
the screws have been made extra deep. With the above inhaler I find it easy to administer all the ordinary anæsthetics, including ethyl chloride, and after removing the bag mixtures of chloroform and ether or chloroform alone. To use a different apparatus for each variety of anæsthetic is inconvenient and it is a great advantage to have an inhaler which can be properly cleaned and which is at any time available for the administration of all the ordinary anæsthetics.

C. HAMILTON WHITEFORD,
Senior Honorary Anæsthetist, South Devon Hospital.
Plymouth.

A NEW RECTAL DILATOR.

THE accompanying illustrations show a new form of rectal dilator made on the same principle as Hegar's well-known uterine dilators. This set of dilators has been made for me by the Holborn Surgical Instrument Company, of 16, Thavies Inn, Holborn Circus, London, E.C., from whom the set of dilators can be obtained. They have the great advantage over any form of mechanical rectal dilator that no damage to the mucous membrane of the rectum can result from their use. They dilate perfectly gradually and smoothly and no force is required in using them. They are very much better than dilating bougies as being made

FIG. 1.



Side view of dilator.

FIG. 2.

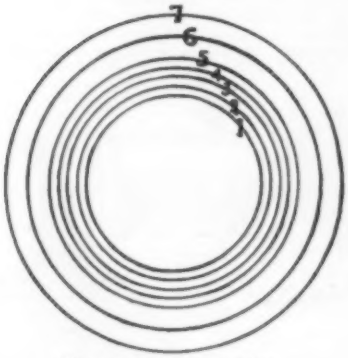


Diagram showing various sizes.

entirely of metal they can be sterilised by boiling. Each dilator is four inches long and, except for the point which is cone-shaped, the sides are parallel. The handle is conveniently shaped to take the ball of the thumb. In using them the smallest size is introduced and allowed to remain till it is no longer nipped but can be withdrawn easily. The next size is then introduced and so on until sufficient dilatation has been obtained. It is possible with this instrument to stretch the sphincters sufficiently to paralyse them without administering an anæsthetic and without hurting the patient. I originally had these dilators made for the purpose of stretching the sphincters in cases of hypertrophy and spasm of these muscles; I have since found them to be of considerable value in a variety of other conditions.

P. LOCKHART MUMMERY, F.R.C.S. Eng.
Cavendish-place, W.

A NEW FORM OF VAGINAL ELECTRODE.

HAVING observed that sinusoidal currents when applied by electrodes in the form of a brush produced well-marked irritation of the skin, hyperæmia, and cutis anserina in cases in which electricity conveyed by the usual electrodes did not give rise to any phenomena either subjective or objective, it Bologna 1 to 530, in Pisa 1 to 530, in Naples 1 to 460, and in Pavia 1 to 330. In towns where there is no university occurred to me that this property of exercising an intensive irritant action might be useful in the treatment of disease when it was desirable to increase the blood-supply of the uterus and adnexa. In my first attempts an electrode in the form of a brush was introduced into the vagina through a speculum, but the process was tedious and not always practicable. I therefore devised an instrument in which an electrode and a speculum are combined. As shown in the illustration, the speculum is in this arrangement represented by a cylindrical vulcanite tube of the requisite length provided with a straight handle. The portion of the tube, *a* B,

next the handle for about three-fourths of its length has a central perforation for conveying a copper wire, whilst the distal extremity, A *a*, is hollowed out into a wide recess in which a kind of piston carrying a brush can be moved to and fro for a short distance (limited by the nut C), so that the brush may at will be either fully drawn into the recess or may project at the end. During the introduction of the tube into the vagina the brush is within the recess until the desired part is reached; the tube is then drawn back, leaving the brush exposed and the current is turned on, the conducting wire being clamped by the binding screw D. When sinusoidal currents were employed in this way their power of attracting blood was quite perceptible but the results of the physiological observations must remain for future consideration.

Gynæcological Institute, Moscow. Dr. G. SNEGUIREFF.

THE SOCIAL AND ECONOMIC POSITION OF MEDICAL PRACTICE ON THE CONTINENT.

ITALY.

A FEW months ago[1] we gave our readers the result of inquiries addressed to friends in various continental countries with a view of eliciting trustworthy information regarding the various aspects of medical practice and the conditions under which it is carried on amongst those nations. The facts so obtained showed that the grievances complained of in our own country exist in an equal or an aggravated degree in France, Germany, and Austria, and it will be seen from the following account that the condition of the profession in Italy is no better. On account of the extraordinary cheapness of medical education in the latter country the proportion of students recruited from the poorer classes of the population is very large. The fees, taxes, and so on, for the whole six years curriculum do not amount to £40, including the cost of the diploma, whilst the expense of living in the university towns can be reduced to a very modest figure indeed. The ambition to belong to a learned profession and the opportunity thus afforded on such easy terms of rising in the social scale attract many to the study of medicine who in Great Britain would naturally gravitate into other and humbler walks of life. This tendency is the more marked because of the comparatively low industrial development to which the country has as yet attained and is noticeable in regard to the legal even more than the medical profession. Young men who in other circumstances would become bookkeepers or shop assistants or enter in some other capacity into industrial or commercial life are thus drafted into the medical profession in overwhelming numbers. The total number of medical men in Italy at the last census (February, 1901) was 22,168, or 1 for every 1460 inhabitants, but these figures do not give a just idea of the overcrowding of the profession in the kingdom, since the proportion in the villages is much less, every town or village of less than 10,000 inhabitants having the services of the *medici condotti* who are disseminated all over the country in a proportion of about 1 for every 2500 or 3000 inhabitants. In the large towns, particularly where a university exists, the ratio is much greater; for instance, in Catania it is 1 to 800, in Palermo 1 to 790, in Turin 1 to 610, in Genoa 1 to 600, in Padua 1 to 560, in Rome 1 to 550, in Florence 1 to 550, in the ratio is usually less, being in Milan 1 to 840, in Venice 1 to 900, in Verona 1 to 1020, in Bari 1 to 1040, in Leghorn 1 to 1200, in Lucca 1 to 1470, in Trajiani 1 to 1570, in Alessandria 1 to 1650, and in Ravenna 1 to 2000. It will thus be seen that another factor conducing to the overcrowding of the profession is

[1] THE LANCET, July 23rd, 1904, p. 242.

to be found in the multiplication of medical schools which abound all over Italy and vie with one another in opening their portals as wide as possible. From these issue yearly hundreds of graduates who are let loose, as it were, into fields where the harvest is *not* plenteous and the labourers are already far too many. Indeed, for the vast majority the harvest to be gleaned pecuniarily is a very scanty one. We have already in a previous article[2] spoken of the *medici condotti*, who in the smaller towns and villages hold the medical practice almost exclusively in their hands. They number 12,000. Their salary is a very small one, varying from 1500 (£60) to 2500 (£100) or 3000 lire (£120) for attendance sometimes on both rich and poor, sometimes for attendance on the poor only, the better off among the inhabitants in the latter case generally paying a yearly capitation fee for medical treatment. As living in the country is cheap the existence of the *medico condotto*, if not free from financial cares, is still a comparatively easy one. Far otherwise is it with the ordinary practitioner in the larger towns. If attached to a hospital or university and enjoying a wide reputation he may indeed earn from 10,000 to 30,000 lire (£400 to £1200) per annum. Some are said to earn more, even as much as 150,000 lire (£6000) per annum. But such incomes are quite exceptional amongst Italian physicians and surgeons, whilst very many are even smaller than those of the *medici condotti* and in general the greatest dissatisfaction exists both with the amount of the annual income and with the often absurdly small amount of the visiting fee. For a single visit a fee of five lire (4*s*.) is reckoned tolerably good and one of ten lire (8*s*.) excellent. We are told on good authority that one or two fortunate men even receive a fee of 50 lire (£2) per visit, but such visits are probably "few and far between." On the other hand, according to the same authority, a fee of three lire or even two lire is very common, and, indeed, in some districts the unfortunate practitioner receives but one lira (10*d*.) per visit! The hardship of this miserable scale of remuneration for professional services is much aggravated by the frequency of bad debts contracted by the very poor and by the long delay on the part of richer patients in discharging their accounts. As in England patients often dispute their bills, well aware of the reluctance medical men feel in resorting to legal measures for enforcing payment. Except in the case of the *medici condotti* the system of yearly payments of a stipulated sum by families does not obtain. Friendly societies and clubs, who employ medical men at a fixed capitation fee, abound in Italy, but the tyranny which these bodies undoubtedly exercise has not yet raised such resentment in the profession here as it has in England; at all events it has not so far provoked any united action on the part of the "Ordini dei Medici," an association which performs much the same functions as the British Medical Association.

Quacks give very little trouble in Italy. The law is severe on quackery, punishing it by fine and imprisonment. But great harm is done by the encouragement which is freely given by a few members of the profession to quack nostrums, almost every newspaper containing objectionable advertisements of such remedies with testimonials to their efficacy from medical men whose portraits are often published to increase the *réclame*. The title of "Doctor" is bestowed on every medical man in Italy without regard to the origin of his qualification to practise. The distinctions made in Great Britain between licentiates of colleges and graduates of universities are unknown and prove very confusing to Italians who cannot understand how a man can be fully qualified and yet not possess the right of calling himself "Doctor." For this reason the English practitioner in Italy who has no university degree is at an unfair disadvantage, which becomes even a disability should he desire to take an Italian degree, since the fact would debar him from reaping the benefit of that provision in the law whereby a foreign practitioner is excused from attendance on classes and from certain parts of the examinations if he be a graduate of a foreign university of repute. The name of "Doctor" being thus so universally applied it has become a habit, especially amongst the lower classes who love titles of courtesy, to call every medical man "professor," even if he be not strictly entitled to that designation, to which, however, not only the holders of university chairs but also their assistants and the numerous body of *liberi docenti* are legally entitled.

In Italy there is no sharp line of demarcation between the general practitioner and the consultant, especially in medical practice. The hospital physician who cultivates and obtains a consulting practice is almost always ready to attend as a general practitioner when called upon to do so and the same is true of most specialists. There are, however, consulting surgeons who decline to take cases without the consent of the practitioner in attendance. The fees charged by surgeons and specialists for operative work are remunerative but as a rule not excessive and sometimes, again, they are absurdly small.

The social position of the medical man in Italy is, on the whole, good, but the profession has suffered much in general estimation through the unfair treatment accorded to the numerous *medici condotti* by the communes employing them and the neglect of their well-founded grievances by the Government. These grievances, of which some account was given in the article already referred to,[3] have now been mostly remedied and the ground lost will doubtless be soon regained. The profession enjoys the advantage of being fairly well represented in the legislature, the newly elected chamber containing 22 medical deputies, and although there has sometimes been a tendency shown by those in Parliament to sacrifice the public welfare to their own supposed interests—as in the case of the attempted legislation against foreign practitioners—on the whole the country and the profession have alike benefited by their presence in the national assembly and many enactments having an important bearing on the public health of the community have been passed through their influence. This has been notably felt in regard to the sanitary law, to the work of midwives and their training,[4] to the measures against pellagra and malaria and for the gratuitous supply of quinine to the poor, and to the furnishing of pure water to towns which previously were insufficiently or badly supplied.

In connexion with the social aspect of the profession in Italy it will not be out of place to refer here to the admirable institution founded at Perugia through the initiative of Professor Ruata of that university for the orphans of medical men. In response to our request for information regarding this college Professor Ruata sends us the following interesting note: "Medical men in this country, though generally able to make ends meet financially, are for the most part far from rich and when one of them dies young leaving behind him a young family the poor widow and her little children are frequently plunged into abject poverty and great misery. To provide a remedy for such a sad state of things it occurred to me to found a college in Perugia for the orphans of medical men. Perugia seemed to me best adapted for this purpose not only as being most centrally situated and easy of access both from north and south but from the fact that it offers rare educational advantages with its university, elementary schools, gymnasium, high schools, technical schools, technical institute, normal school for teachers, Royal agricultural college, and school of fine arts for painting, sculpture, and music. The late King Humbert interested himself in the scheme, urging the immediate opening of the college. 'If you wish to succeed,' he said, 'lose no time; begin if only with three or four orphans, for these will become the nucleus of a great institution, and do not think of large buildings but make a start at once.' Accordingly in 1891 the college was opened with five boys and only 4000 lire (£160) of capital. In 1898 the number of boys had increased to 21 and the capital to 100,000 lire (£4000), the principal source of income at that time being annual voluntary contributions of 5 lire each from about 1000 medical men. The progress already made had thus been most satisfactory but it became evident that the needs of the profession were immensely in excess of what could be provided by such means and it became necessary to find some other way of obtaining the requisite funds. The best plan which suggested itself was to impose a tax of 5 lire (4*s*.) by Act of Parliament upon every medical man practising in Italy, and after four years of incessant work I actually procured the passing of an Act which imposed this tax upon every medical man in receipt of a salary, however small, from any public body. The income thus produced amounts to about 100,000 lire (£4000) per annum. There are now two sections in the college, one for boys, who number at this moment 66, and one for girls, of whom there are 31. These boys and girls hail from all parts of Italy." This college is doing excellent work by educating and training these poor orphans, not for professions but for trades by which they are all enabled on leaving the institution at once to earn a comfortable livelihood.

[2] THE LANCET, Feb. 13th, 1904, p. 470.

[3] THE LANCET, Feb. 13th, 1904, p. 470.

[4] Vide THE LANCET, Jan. 9th, 1904, p. 113.

THE LANCET.

LONDON: SATURDAY, JANUARY 7, 1905.

The Army Medical Service.

As we announced last week, the KING has been pleased to approve of the appointment of Surgeon-General ALFRED H. KEOGH, M.D., C.B., to the post of Director-General of the Army Medical Service. We also pointed out briefly that the appointment of Surgeon-General KEOGH marked a new departure in that his selection for this important post was clearly not based upon seniority of service. We may assume that the War office in sending Surgeon-General KEOGH'S name to the KING at the present juncture for this important and responsible post was accepting the recommendation of the Advisory Board whose intention it was to emphasise the policy of promotion by selection. In the correctness of this principle we must at once declare our belief; indeed, as the readers of this journal well know, it is one for which we have always, in what we conceived to be the interest of the public service, contended. One of the ablest and most independent Director-Generals who ever occupied that post was strongly in accord with this view, for it was one of the essential features of the Royal Warrant issued in the time of the late Sir WILLIAM MUIR that promotion to the upper ranks of the Army Medical Department was to be exclusively by selection, a method which, to the regret, as we know, of some of the best men in the Army Medical Service, fell more and more as time went on into abeyance. We have always considered that, however necessary the possession of military rank and titles might be found to be, the Army Medical Service must in the first place be regarded as a scientific branch of the army, that a way should always be kept open for the reward of professional merit, and that this should be counted as a more important factor in establishing a claim to promotion than was seemingly the case in days gone by.

Having so long held and advocated these views we can, while sincerely sympathising with the distinguished officers who, by virtue of their rank, seniority, and past services had earned an expectant title, as it were, to the post and whose legitimate hopes and ambition have been disappointed, honestly and consistently congratulate Surgeon-General KEOGH on his appointment—an appointment which represents the adoption of a new and, as we believe, sound principle in this respect. In the various drastic changes which have been proposed or carried out in our whole army system since the late war in South Africa it became certain that the medical branch of that service would share. But it is obvious that at first sight the selection and promotion of a comparatively junior officer as best qualified for the post of Director-General, in the opinion of those who had the responsibility of making the appointment, over the heads of so many of his seniors was calculated to cause great surprise. The senior officers, be it remembered, had been previously selected for advancement to administrative rank and some of them had rendered very distinguished service in that capacity. We have turned to Surgeon-General KEOGH'S record of service. It is, undoubtedly, a good one and of a varied kind, but so far as his more military medical duties are concerned probably not better than could be shown by others. But it is to be noted that he has been chosen on several occasions to take part in the proceedings of War Office commissions and boards of a mixed kind in connexion with most responsible and important inquiries, and it seems clear to us, moreover, that he has on such occasions exhibited qualities which have most favourably impressed those with whom he has come in contact. We may assume, as we have said, that Surgeon-General KEOGH was strongly recommended for promotion to his present post by the Advisory Board, a board which, it should be borne in mind, in addition to specially appointed civilian members, includes also military officers some of whom are army medical officers, and it may be fairly inferred that these latter concurred in the course adopted. It remains for the newly appointed Director-General to justify, as we feel sure that he will, the confidence that he has created and the distinguished honour implied by his selection in the exceptional circumstances of the case to the post which he now fills. He has our best wishes for his success.

The Decline in the Birth-rate in New South Wales.

THE decline in the birth-rate in this country of recent years is a matter of grave importance and is one which has long occupied the minds of those who take an interest in the future welfare of the British race. This decline in the birth-rate is to be found not only in almost all the countries of the Old World but has now spread to the countries of the New. The matter has, indeed, assumed such importance in New South Wales that last year a Royal Commission was appointed to inquire into the "decline in the birth-rate and the effects of the restriction of child-bearing on the well-being of the community." The commission carried out its inquiry with much completeness and its report, which has just been issued, is a document of great interest and importance. As a result of its statistical inquiries it confirmed the fact that there had been a very definite and marked decline in the birth-rate in the colony since the year 1889 and that the rate had exhibited a tendency to decline for a few years anterior to that date. The commission further found that such a decline was existent not only in its own colony but also in all the States of Australia and that a similar phenomenon was present in the birth statistics of most of the countries of Europe and in many of the large cities of the United States and South America.

The birth-rate in New South Wales began to fall in a most remarkable and sudden manner in 1889 and has continued to fall steadily until the year 1902, when the diminution amounted to as much as 10 per 1000 of the population. Further inquiry showed that there had been a rise in the marriage age during the years 1889–1902 which would in itself account for a slight fall in the birth-rate. Having

proved to its own satisfaction that such a marked decline in the birth-rate actually existed the commission set to work to attempt to discover whether any condition existed which could be attributed to natural causes and which was sufficient to explain this remarkable fact. Its investigations failed to show any such natural cause. It found that the fall in the birth-rate was independent of any change in the age constitution of the population generally or in the age constitution of the women of the conceptive period, and that it was independent of such causes as any variation in the marriage-rate or any tendency to lessened fertility. Indeed, no adequate natural cause could be found and the commissioners were forced to come to the conclusion that the main factor causing the decline was to be found in some condition quite independent of natural causes and over which individuals had some control. In their endeavours to determine the character and nature of this force they examined a number of medical practitioners, including most of the leading medical men of the colony. The view which they finally adopted is in agreement with that held by the majority of the scientific writers who have discussed this difficult question of the falling birth-rate—viz., that it is due to the prevention of the results which nature has ordained to follow marriage, or, in other words, to the deliberate curtailing of reproduction by the prevention of pregnancy. This practice is not one of any recent growth but, if we are to believe the medical men who gave evidence before the commission, it has become excessively common of recent years amongst all classes of the community. Such a procedure is not only harmful, inasmuch as it leads directly to a diminution in the fecundity of the women who practise it, but the evil results which follow it lead in their turn to an absolute diminution in the fertility of these women. No doubt can be left in the mind of any intelligent observer that these practices are followed by results not only deleterious to the general health of the patients but also only too often by temporary and even permanent ill-effects on the genital organs of such a character as to cause ultimate sterility. Further than this, the commission found that there was a growing tendency to the procuring of criminal abortion and that this fact was also responsible in part, at any rate, for the decline in the birth-rate. The commissioners have no doubt that the reasons influencing those who practised limitation of the size of the family are such as generally prevail in all communities where these practices are found. Their origin is essentially a selfish one and although the adherents of this view are accustomed to still their consciences with the sophistry that it is for the good of the children themselves, as the parental means will not allow the rearing of a large family, yet the real reasons are to be found rather in the desire to avoid their proper duties and responsibilities. An unwillingness to assume the care of children, a disinclination to put up with the discomforts of child-bearing, and a selfish love of ease and luxury, which the expense of a large family might curtail—such are the real causes in the great majority of cases. That such doctrines should in the course of time spread even to young communities such as the States of Australia is not surprising when we bear in mind how widely spread and how widely practised these customs are all over the world.

It is extremely difficult to determine with any degree of accuracy what are likely to be the ill results to the bodily health of the women who practise such methods of prevention. The medical men who gave evidence before the commission were almost unanimous in laying stress on the evil results likely to ensue but we must bear in mind that the direct connexion between the practice of the prevention of pregnancy and the various gynæcological disorders which they held to follow these practices is one very difficult to prove. In the case of procured abortions we are on surer ground. That numbers of women are disabled every year by such procedures there can be no question at all, in fact, in only too many cases the death of the patient can be directly traced to such practices. Whatever may be the opinion as to the physical ill-effects which follow the prevention of pregnancy there can be no reasonable doubt as to the evil moral effects. As the commissioners point out in their report, "although criminality does not attach to the prevention of pregnancy, while it does to the procuring of abortion, yet both practices, as methods of avoiding procreation, are equally opposed to that morality upon which the welfare of the race essentially depends. They lower the standard of right living and thinking in a community, create laxity of morals, debase character, and ignore the sanctity of human life." Nor does the evil end here. The physical and moral advantages of large families are well recognised. Members of small families, like only children, are poorly equipped for the struggle of life and the avoidance of obligations and responsibilities on the part of the parents does away with a very powerful factor in the education of the individual. The importance of a rising birth-rate to the Commonwealth of Australia is all the greater, since the future of that Commonwealth depends to a very large extent on its ability to people its vast expanse of country. What the diminution in the growth of the population means to Australia will be realised when we recall the statement made in the report of the commission that had it not been for the reduction in the birth-rate and the excess of mortality amongst illegitimate children over legitimate children which have occurred in the period 1864–1902, the population of New South Wales would now be more than 250,000 greater than it is; while for the whole of Australia the approximate loss of inhabitants amounts to no less than 940,000. What the effect of such a loss of population means to commerce and the prosperity of the country it is difficult to overestimate.

The commission attempted to formulate some suggestions which might help to check this powerful drawback to the welfare of the colony and amongst other measures it recommended that, in order to help to lower the death-rate from sepsis in connexion with childbirth, more hospital accommodation should be provided for parturient women, especially married women. The commissioners also showed themselves alive to the important part which the care of the unborn will play in the future by recommending the establishment of pre-maternity hospitals where pregnant women could be taken in before their confinements and treated if necessary. Further recommendations included the compulsory notification of puerperal fever, which at present is not required in the colony, the licensing of lying-in homes and private hospitals, the more perfect administration of the Poisons Act, and the prohibition of the sale of preventives and of the

indecent literature relating to their use. We fear, however, that such measures, although they will no doubt remedy existing evils, will not go far to remedy the deliberate prevention of pregnancy. The report rightly lays great stress on the part to be played by the strengthening of religious feelings. Upon this would follow the abolition of those motives of self-interest which at the present time have done so much to blind the people with regard to the immorality of such practices. It is only by the awakening of the higher sentiments of duty and self-control, sentiments which play so important a part in the development of the race, that any good is to be hoped for. The danger is one of imperial importance, it concerns not only the colonies but also the Mother country, and is one which becomes of increasing importance every year that it continues. Medical men can do much to assist and it is to their influence and to that of the teachers of religion that we look for help in the checking of customs which inevitably lead to decay of the social and moral qualities of the race and imperil in a very high degree the future well-being of the whole British nation.

The Amendment of the Workmen's Compensation Act (1897).

IT has for a long time been evident that the Workmen's Compensation Act (1897) is capable of improvement in several particulars and a departmental committee of inquiry was appointed to this end by the Home Secretary in November, 1903. The report of this committee was made in August, 1904, and its various recommendations included several which were open to serious objection. But, for the moment at any rate, we propose only to allude to those parts of the report which deal with the appointment of medical referees, this being, in our opinion, a matter of the first importance for the medical profession.

The Act of 1897 contains clauses providing for the performance of certain duties by medical referees but it is well known that these clauses have remained almost entirely inoperative owing to the services of the present medical referees not having been used by the county-court judges. A completely new suggestion is now made by the departmental committee. In Paragraph 265 of its report it is proposed that the medical referee shall be a "public official rather than a medical man in practice," and that he shall be remunerated not by fees but by salary. At first he might be allowed to combine the work of medical referee with some other public appointment, such as certifying factory surgeon or medical officer of health to a local authority, but the opinion of the committee is that the medical referees should eventually become part of the civil service. On the ground that the change partakes of the nature of an experiment it is recommended that only a limited number of such referees should be appointed and those only for a limited period, such as three years. In Paragraph 259 it is recommended that the reports of the medical advisers of the employers on the one hand and of the workmen on the other, if any, should be filed with the registrar of the county court, that the county-court judge should have a discretionary power as to ascertaining the opinion of the medical referee, and that a copy of the report of the medical referee should be accepted as conclusive evidence of the condition of the injured person at the time of the report. It is also suggested that the judge shall have power to summon the medical referee to sit in court as an assessor. Another important duty to be discharged by medical referees would be the giving of certificates as to the condition of aged, infirm, or maimed persons, and those certificates would presumably be "conclusive evidence." In framing these recommendations the members of the committee no doubt acted with the best possible intention, but they do not seem to have recognised fully the inherent difficulties of the medical questions involved or the extent of the departure from the existing system which incorporation of their proposals in an Act of Parliament would bring about. In the medical profession it is universally held that personal experience in the treatment of patients is essential to the formation of a sound opinion with regard to any given case, and in the application of a Compensation Act which necessarily presupposes divergence of opinion the weight of authority will usually be on the side of the most experienced witness. The departmental committee, however, oblivious of this cardinal principle, actually proposes that the referee of the future shall be a "public official rather than a medical man in practice" and would thereby prevent such appointments from being accepted by those who are the most competent to fill them. Under any Compensation Act conflicting opinions will have to be reckoned with, rebutting evidence will often be forthcoming, intricate questions of diagnosis must sometimes arise, and patients will occasionally present symptoms regarding which it may be very difficult to obtain "conclusive evidence." In fact, it requires no special faculty of discernment and no great familiarity with the methods of officialism to foresee that the recommendations of the departmental committee would tend to create a class of medical referees consisting either of (1) men willing to give their whole time on a three years' engagement, or (2) of medical officers of health who, being appointed solely to discharge administrative functions, have given up general medical practice, or (3) of certifying factory surgeons happening to have a practice so small that it is not worth retaining. We cannot regard any of these as ideal medical assessors under a Compensation Act.

We do not believe that the departmental committee could possibly have made these suggestions if there had been placed before it evidence of the importance of the offices which it was intended to create, to say nothing of the essential necessity of the medical referees or examining surgeons being men who would have the confidence of the medical practitioners in each district and whose opinions would be generally regarded as "conclusive." It would be intolerable if medical men of long experience in general practice or consultant surgeons of great special knowledge should have their opinions reviewed by officials of the status which is now foreshadowed. We notice also that, as in the Act of 1897, the county-court judges are to have the option of calling in the medical referees or not, and if the status of the medical referees is not unimpeachable it is easily to be seen that their services will not be required by the judges, when the amended Act, so far as the medical referees are concerned, will continue to be the dead letter that it is

at present. We have long been of opinion that in the interests both of employer and employed the medical referees should decide all medical questions and that their decisions should be final, but the very fact of this finality, from which there is to be no appeal, makes the appointment of men of the highest professional knowledge and experience a *sine quâ non*. It will be our duty to watch the introduction of the Bill that is now being drafted and if it contains the recommendations of the departmental committee as to the appointment of medical referees, it will also be our duty to advise the medical profession to bring every possible influence to bear on Members of Parliament so that only men of position and experience may be appointed as judges over their *confrères*. It should be pointed out that with proper regulations and systematised arrangements by the court of the work of the medical referees the services of hospital surgeons could be obtained at certainly not larger expense than that of salaried officials—that is, if any reasonable or sufficient salaries are proposed to be paid. The question of the employment of experts, although mentioned in the evidence before the committee, is not touched upon in the report but will require consideration. If an employer or a workman has had the opinion of, say, a consulting ophthalmic surgeon, it would seem incongruous to remit that opinion to be revised by a medical man who had not given special attention to diseases of the eye. We think that the Secretary of State would do well, before passing the final draft of the amending Bill, to assure himself that any suggested rules for the appointment of medical referees would be likely to meet the views of medical men, as the success of the scheme is dependent on the absence of friction. The harmonious working of the medical referees with the medical men interested in the various cases is absolutely necessary unless the Act is to become a farce and we are sure that this can only be obtained by the appointment of medical referees of the highest standing with proper arrangements for due emolument, which implies mainly a due regard for the waste of the valuable time of busy men.

The Public Appreciation of the Dangers and Treatment of Cancer.

MR. A. W. MAYO ROBSON, whose Bradshaw lecture before the Royal College of Surgeons of England was published in full in THE LANCET on Dec. 3rd, 1904, p. 1545, concluded his address by expressing the hope that some of the views that he had enunciated might filter through the medical profession to the public. In our columns a fortnight later we published a letter from Mr. C. HAMILTON WHITEFORD urging "the direct education of the public by the profession" in the earlier signs of cancer, when the need would become apparent for resort to operation early, if the best results are to be obtained from surgical treatment of this malady. All of us must oftentimes have seen cases of cancer where delay in resorting to an operation has seemed to have been the cause of the disastrous issue of the case, and it not infrequently happens that patients apply to surgeons in such an advanced stage of malignant disease that cure by operation is wholly out of the question. It naturally occurs to us in the face of such tragedies to regret that the knowledge possessed by all operating surgeons had not been available to save the patients from such a calamity. But the question arises, What is the best way in which these disasters are to be prevented? And we are not prepared at once to adopt the position that the profession should take active measures to instruct the public in the signs and symptoms of the early stages of malignant disease in order that operative treatment may be obtained at the first possible moment. The risks of such a course are as obvious as they are real. A half-educated but wholly frightened public might try to force the hands of the general practitioner in junctures when the general practitioner would particularly require to be unembarrassed that he might face a difficult situation in a calm and unprejudiced manner. All those of the patient's relatives who had been educated, as they conceived, in the science of disease would at once take views on the possible or probable malignancy of the patient's condition. They might urge operation when the medical adviser deemed the course unnecessary or they might regard as an indication of innate bloodthirstiness his avowed intention of using the knife. In such circumstances the medical man's difficulties would be doubled and the patient would become the unconsulted spectator of a quarrel in the rights of which he might very well think that he was the chief person interested.

Let us also remember that to advocate education of the public in the dangers of neglected cancer is to imply that the public alone is at fault when the distressing situation occurs that patients die from malignant disease whose lives could have been saved if the condition had been detected in an earlier stage. We are not prepared so unreservedly to exonerate the medical profession from playing a part in the lamentable and admitted situation. Some cases of malignant disease come to surgeons at too advanced a stage for curative operation and the delay in resorting to surgery has sometimes been due to the failure of the medical adviser first consulted to appreciate the significance and gravity of the symptoms presented to him. In saying this we are not bringing a "railing accusation" against a large number of the medical practitioners of this country. We are well aware that there is something more that needs to be said on this subject. For many years now what are called "pre-cancerous diseases" have been described and in this respect there was absolutely nothing said in his recent Bradshaw lecture by Mr. MAYO ROBSON that has not been said before and often reiterated. Only our older readers can recall the time when Sir JAMES PAGET first described the disease of the nipple, which now bears his name, and described it too as a precursor of cancer of the breast; and many of us do not care to remember how many years it is since the various forms of chronic superficial glossitis were recognised as often ending in epithelioma of the tongue. The same is true of our knowledge of warts passing into cancer, of moles originating sarcoma, and of chronic mastitis terminating in cancer. Why has this knowledge been so slow in laying hold of the entire body of the medical profession? The answer to the question, we think, is this. Practitioners generally do know the facts, but they

are often prevented from giving the soundest advice to their patients by two considerations. In the first place, with growing experience they see patients having these so-called pre-cancerous conditions living to a ripe old age without developing malignant disease, and the optimistic tendency is so strongly developed in many of us that what we have seen occasionally as a happy exception we are fain to take as a type of the commonplace and fairly expected event. Again, men of large experience have seen operations for cancer performed in the very earliest recognisable stage of the disease which have failed to relieve the patient entirely of his malady. We fear, from the way in which the question is sometimes discussed, that some surgeons encourage the thought that cancer is certainly curable by operation if only it be attacked in its early stages. There can be no doubt that the earlier any given case is treated and the more freely the suspicious tissue is excised the better the prospect of cure, but we do not think it is in accordance with known facts to say that, if only all cases of malignant disease were treated by the surgeon as soon as a diagnosis was satisfactorily arrived at, they would all be cured. It must not be forgotten that the malignancy is shown in more than one way. In some cases it is especially a local malignancy which may have many forms of expression, but in other cases the malignancy is chiefly expressed in an early infection of distant parts, while the local changes show but slight departure from benignancy. There is no doubt that the infection of internal organs by external cancers occurs at a most varying time in different cases, and the success of an operation for cancer depends not only upon the freedom with which the local affection is removed but also upon whether the operation anticipates internal infection. It must not be forgotten, too, that operations for malignant disease have of late years become more extensive than they were. This has been attended with a very considerable improvement in their results but we cannot doubt that the extent of operation has had influence in checking some members of the profession from recommending recourse to its assistance. We do not for a moment defend this position, but recognising the different ways in which the same facts are regarded by various minds we cannot help seeing that this also may be one reason why what is generally known appears not generally to be practised.

While we do not think that the public can be wholly blamed for reluctance to undergo operations upon grounds that must to some extent be speculative, and while we consider it unjust to reproach the medical profession—as is sometimes done—for the number of cases of cancer that reach the operating surgeon too late for operative interference, we think that the teachers of surgery must take their share of responsibility in the matter. They should be insistent upon the perils of delay and clear upon the duty of the medical practitioner to expect the worst in many circumstances where, after all, the happier issue may be the true one. The pre-cancerous states are seldom made the subject of much comment by teachers and do not suggest themselves as examination subjects. Lecturers, therefore, may be apt to omit the discussion of them with due stress, a fact which cannot be without its effect upon their pupils in the future exercise of their profession. We think that the medical profession, as a whole, should wake up to the fact that cancer is on the increase among us—at any rate, that many more cases can now be recognised than was possible formerly. But if the profession were to take upon itself the instruction of the public in the early signs and precedent conditions of all forms of malignant disease serious evil might follow. We all meet individuals who for many years of their life are overshadowed by a dread of the occurrence of cancer. Some have thought that this dread may in some occult way predispose to the attacks of the disease but, whether this is so or not, no one who has once witnessed the needless sufferings of an individual thus haunted would willingly risk the infliction upon a large number of the public of similar sufferings. Half-knowledge is a dangerous and distressing thing; in this matter the public would be at the best possessed with only half-knowledge. We think, therefore, that, at present at any rate, all that can be done is for the profession to consider thoughtfully the circumstances of the case. Practitioners must realise their great responsibilities; they must insist on all necessary examinations; they must, whenever possible, arrive at a diagnosis at the earliest moment; they must seek help in all cases where they feel difficulty in diagnosis or in treatment; and they must not shrink from advising operations in malignant disease, even where the signs of that disease are as yet but slightly marked, bearing in mind what must be meant by neglecting operation in malignant disease at the favourable time.

Annotations.

"Ne quid nimis."

THE RELATION OF THE LEISHMAN-DONOVAN BODY TO THE TRYPANOSOMA.

AT the time of the meeting of the British Medical Association at Oxford in July, 1904, the subject of the development of the Leishman-Donovan body had reached a very interesting point. Captain Leonard Rogers, I.M.S., had just announced by telegram from Calcutta that he had succeeded in developing trypanosomes from the Leishman-Donovan body. All those who heard this announcement and who were capable of grasping what it meant left the meeting anxiously looking for confirmation of the observation. At the present moment the state of belief may be summed up by saying that there is every probability that the observation is correct. Major W. B. Leishman, R.A.M.C., had already promulgated the idea that the parasite was probably allied to the flagellata and was directing his attention to the investigation of this belief. Other observers also were struck with several of the points of anatomical resemblance between the "body" and the trypanosoma, so that Captain Rogers's announcement fell upon minds ready to receive his conclusions. Since Sir P. Manson interpreted the significance of the crescent body in malaria bursting into flagella no more important scientific observation has been recorded, for the indications point not only to the "body" becoming a trypanosoma but the belief is entertained that the malaria parasites themselves may be but a phase in the development of these pathological occupants of the human blood. Dr. G. C. Chatterjee, with Captain Rogers's permission, has forwarded to us a

paper on this subject with drawings of the trypanosoma cultivated in the laboratory from the Leishman-Donovan body. The paper is published at p. 16 of our present issue together with two plates, careful examination of which leaves little doubt as to the identity of the laboratory specimens of the parasite and those met with in the splenic blood of persons suffering from the obscure ailments caused by the presence of the parasite. The patient from whom Dr. Chatterjee obtained the specimens of blood on which his observations are founded is of particular interest, inasmuch as he came from Sylhet in Assam where kala-azar is prevalent. This puzzling ailment has long been a subject of discussion but there seems now to be but little doubt that the signs and symptoms and pathological changes characteristic of this disease are due to the Leishman-Donovan body. When the possible homology of these hitherto designated specific parasites and the apparently divergent diseases to which they give rise are contemplated the mind is directed towards a common origin for such diseases as malaria in all its intricacies, sleeping sickness, kala-azar, tropical cachexia, splenomegaly, and all the numerous undetermined febrile attacks and anomalous "continued fevers" with which the medical practitioner is familiar in hot climates. It would seem as though we were on the threshold of a great generalisation of primary pathological significance and of great scientific importance. The close bearing which the diseases of animals have upon those of man and *vice versâ* would seem to be carried a step forward by these recent discoveries. The trypanosomic diseases of animals here called nagana and surra, there called mal-de-caderas, and now horse and cattle sickness seem to have their counterpart in human beings. A parasite closely resembling the Leishman-Donovan body has been found in fish in Assam by Bentley in regions where kala-azar prevails, so that the inhabitants of the earth, air, and water seem to be linked together in their parasitic afflictions in a manner undreamt of but a few years ago. It is well known that plague attacks men and animals in common and it may be that many of the familiar diseases from which human beings suffer in temperate climates are "caught" from animals, especially domestic animals, to an extent which may tend to cause us to look upon pets of various kinds as dangers to health and to life.

THE REGISTRATION OF NURSES.

WHEN Parliament meets a few weeks hence the committee which is considering the subject of the State registration of nurses is expected to report the result of its deliberations. It is generally believed that the report will be adverse to the two Bills which at present hold the field, the proposals set out in the Bills being objected to rather than the principle of registration of nurses. It is recognised by many of those interested that some improvement of existing conditions is needed and should the proposals now put forward be condemned renewed efforts will be made to find some other means of dealing with the subject. But it is known that many members of the medical profession, from no narrow motives, but in honest belief that registration of nurses is not required, do not approve of either Bill, and the supporters of the Bills must recognise the features which render their proposals unacceptable if they wish to get anything like general medical approval. There are two features in the present proposals which are always sure to excite strong opposition and which might be eliminated without permanent harm to the movement for improving the training of nurses. The first is labour with a capital L and the second examination with a capital E. As regards the former there is no doubt that many influential persons are attracted to this movement by the promise that it gives of organising coöperation amongst an important class of women workers in order to prevent the exploitation of their labour by employers. Valuable as this step may be a proposal for registering nurses which carries with it a provision for forming any semblance of a nurses' trade union is doomed to fail in securing State recognition or even general support by the public. With respect to the second feature it may be noted that there is at present a strong revolt against the tyranny of examinations. The reorganisation of the University of London a few years ago was a direct result of this movement, which is also illustrated by Lord Curzon's action in abolishing many of the competitive examinations for posts in India and by the directions in Mr. Cecil Rhodes's will as to the method of selection of his Oxford scholars. It is therefore not to be wondered at that grave apprehensions are in the minds of many at a proposal to secure the proper training of nurses by setting up examinational tests. The ease with which the acquisition of facts from books can be tested and the difficulty of estimating so many of the qualities which go to make a good nurse lead some to regard with suspicion any sort of examination as a factor in a nurse's education. Certainly the idea of an examination conducted by examiners who have not taught the candidate, on the analogy of examinations for medical students in London, is undesirable as a test of the education of nurses. It would tend to superficial cram and would undoubtedly cause nurses to regard their all-important ward work as a mere means to an end. While any fear that this movement might be used to safeguard the interests of the employed against her employer can be eliminated by care in constituting the registration authority, so the evils of examination can be eliminated by care in deciding what shall be regarded as the qualification for registration. Certainly, so far as the great schools of nursing are concerned no more examination than is at present carried out in the schools themselves is necessary. The registration authority, however it may be constituted, would do enough if it set up an ideal curriculum as to length and general features and recognised all nursing schools willing to conform to the ideal, so that nurses who receive certificates of satisfactory training in these schools would be admitted to registration. It would, of course, be necessary to inspect the schools in the first instance and also to carry on a periodic system of inspection. The authority should, in fact, examine the schools and not the nurses, in which way, at any rate, so far as the nurses trained in the chief schools are concerned the dangers of examination could be avoided. We are sure that if the registration of nurses becomes a State duty it will be necessary to eliminate the evils of examination, but we are not so sure that the promoters of legislation in this direction understand the feeling of the medical profession or the public on the matter. There are many who think that State registration, at any rate for the present, is unnecessary, and that a voluntary agency, erected by philanthropic effort, would meet the existing circumstances. Voluntary registration properly carried out would level up the education of nurses generally and would enable those nurses who have gone through a satisfactory training to secure some more public recognition of the fact than is provided at present by their hospital certificates.

SCURVY IN SOMALILAND.

IN a leading article in THE LANCET of Dec. 10th, 1904, p. 1659, we referred to some points in the etiology of scurvy. We have now received a reprint of an article in the *Indian Medical Gazette* (No. 7, July 7th, 1904), on "Scurvy in Somaliland; notes on the Condition of the Blood Serum," by Lieutenant F. A. Fleming Barnardo, I.M.S. Lieutenant Barnardo's observations were made with a view to determine

the therapeutical value in scurvy of certain foodstuffs and drugs and also to try to elicit any information as to prophylaxis and treatment that might be of use in future campaigns. In the course of the investigation it was clearly shown that the essential feature in scurvy is a diminution of the alkalinity and coagulability of the blood. This fact had previously been demonstrated by Dr. A. E. Wright. Lieutenant Barnardo makes the plausible suggestion that the alimentary canal may be the seat of production of toxins in scurvy. That toxins evolved in the intestines do play an important part in many febrile conditions leading to blood destruction has been proved by the researches of Professor Ewald and others. Lieutenant Barnardo proceeds to argue that from the absence of any epidemic nature of scurvy and its inevitable onset after a dietary of insufficient alkaline foodstuffs it is certain that there is no new specific organism introduced into the system as in beri-beri. Probably the toxæmia, if toxæmia it be, is due to bacteria which are normally present in the alimentary canal but which have taken on an abnormally active development and formation of toxins consequent on the diminished vitality of the mucous membrane and a diminished bactericidal power of the tissues generally. In infectious and acute intoxications alkalinity of the blood is diminished, and as a condition of diminished alkalinity certainly predisposes to bacterial infection the disease is thus aggravated. These suggestions are certainly worth further consideration. If Lieutenant Barnardo's views are correct, indications for treatment are afforded which may prove to be of great value and the administration of intestinal antiseptics should be proceeded with. Lieutenant Barnardo utters a warning against the use of lime juice which has been kept in barrels. The juice of fresh limes, he says, is of value but he contends that the preparation which has been preserved for some time tends to decompose into carbonates and free citric acid and can then be of no avail.

CURRENT THEORIES OF THE HEREDITARY PROCESS.

THE first of a series of eight lectures on the subject of Theories of Heredity was given t University College, London, on Nov. 22nd by Professor W. F. R. Weldon, F.R.S., Linacre professor of anatomy at the University of Oxford. Starting from the standpoint that the study of generations of individuals showed, first, that the average character attained by most of the members of one generation was like the average character of the preceding generation—a generally constant though not universal rule in the phenomena of heredity; and, secondly, that average persons are descended from average parents and exceptional persons from exceptional parents, it was claimed that these formed the necessary data of the science. These were facts based on the study of human races, of plants, and of animals. There was no necessity for starting with biological hypotheses to describe and to classify these phenomena of heredity. But when an explanation was sought of the mechanism or *modus operandi* of heredity, one passed, he said, outside the domain of statistics and concrete facts and had to picture the invisible organic processes accompanying the growth and the reproduction of animals. Reproduction in unicellular animals was illustrated by a description, with diagrams and slides, of the process as it occurs in the stentor, one of the protozoa. The body of the stentor, which is of an elongated pyriform character, is not a homogeneous unit but shows differentiation of organs, such as a thick vibratile band of cilia in the oral region, a hard cuticle beset with small cilia externally and attached internally to a system of fine muscular fibrils, a long moniliform nucleus and three smaller micronuclei, a mouth, and a contractile vacuole or excretory organ, while the general cell protoplasm is finely granular in appearance and the ectoplasm forms a clear subcuticular layer. In the process of growth the "ectodermal" part produces more cuticle, cilia, clear protoplasmic layer, and myo-fibrils, and the granular protoplasm produces granular protoplasm—in fact, each part of the body exhibits increase of its special structure. The body of the stentor is, in fact, histologically differentiated. On section of the body transversely into two or three equal parts each part thus separated grows and regenerates itself into a complete stentor, the anterior or cephalic segment growing a body and foot portion, while the middle part regenerates both head and foot portions, and the third or foot portion regenerates body and head. Cut into slices half a millimetre thick, the cut slices regenerate, each into a complete stentor. A stentor is thus composed of "units" each of which, removed from the rest, is capable of rebuilding the whole body system of units. These units as they exist bonded together in the body must have many properties latent, but when, for example, the head region is cut off the neck region is roused from its latent or dormant state and regenerates a fresh head region. In the natural process of reproduction the stentor undergoes elongation and develops a constriction in the middle, the ciliated band, nucleus, and contractile vacuole each divides into two, and one each of these passes to the posterior half of the body which is then completely constricted off, each half or miniature stentor now rapidly growing into full size. There is thus a division and rearrangement of the bodily parts or "units" of the stentor preceding its reproduction by fission. Experiments made on all protozoa (except sporozoa which are impossible to experiment with) suggest similar facts and deductions of a general reaction essentially similar to the stentor. The stentor is asexual, concludes Professor Weldon, and the occasional meeting and adhesion of two individuals with partial exchange of material is necessary for their well-being (rejuvenescence), but this phenomenon has nothing to do with reproduction. In some protozoa after such partial union and exchange of material the separated organisms seem to exhibit increased power of reproduction. In hydra the phenomena of growth and regeneration are similar. Each tissue reproduces its kind and a thin section reproduces the whole body and tentacles. In hydra reproduction occurs in two ways or more, first by budding, in which a tubular finger-like projection of the body wall, or sometimes of the ectoderm alone, grows into a small hydra which eventually separates from the parent. The second method is the production of a large somatic cell (ovum) beneath the ectoderm. This gives rise to two polar bodies (maturation phenomenon), and after their extrusion the ovum is fit for impregnation. Other somatic cells of the hydra give rise by division into minute flagellate cells (spermatozoa) which are liberated. When these free-swimming elements meet the ovum one of them enters into and fuses with the latter (fertilisation). From the impregnated egg a young hydra arises by the usual process of embryogenesis.

THE TREATMENT OF EPILEPSY WHICH IS DUE TO TOXÆMIA.

Dr. Allan McLane Hamilton of New York has published an article in the *Medical Record* of New York of Dec. 3rd, 1904, embodying his own large experience in the treatment of those cases of epilepsy mainly due to conditions of toxæmia—auto- and hetero-toxæmia. The treatment of epilepsy from remote times has for the most part, says Dr. Hamilton, been empirical if we may except that of a surgical kind, while many drugs recommended for epilepsy have been "mere therapeutic guesswork" due to imperfect knowledge of its pathology. Putting aside those forms of epilepsy due to premature ossification of the cranial bones, to fœtal or infantile injury or disease of the brain, or to the

growth of neoplasms, "there is a large number of so-called idiopathic cases which are exceedingly obscure, as it is impossible with any certainty to trace either a cause or underlying morbid process." These are the cases, he adds, which have been especially treated with bromides "with the idea of smothering the activity of the cellular elements in the brain." From a critical review of the work of Raymond and Petit, and especially of Voisin,[1] and from a consideration of the bio-chemical facts regarding the blood and urine of epileptics demonstrated by Herter and Smith, and later by Carlo Besta (1902) and other Italian investigators, it is rendered probable, says Dr. Hamilton, that toxæmia enters largely into the pathogeny of epilepsy. The occurrence of the fit betokens the accumulation in the body of some particular toxic agent in quantities sufficient to excite the cerebral nerve cells to convulsive discharge. The toxæmia was probably a mixed one—i.e., both autogenous and heterogenous. Eclamptic attacks and the functional epilepsy produced by absinthe drinking illustrated the action of toxæmia in the brain. Auto-toxæmia occurred in three ways: first, from gastro-intestinal derangement which set free purin bodies and putrefactive products (indican and skatol) in the alimentary canal to be taken up by the blood; secondly, the presence in the blood of certain familiar cocci, such as the staphylococcus aureus and albus; and thirdly, by poisoning of the cerebral nerve cells by degradation products of the nervous tissue, among such toxic products being cholin which was shown by Mott and Halliburton to be toxic to cats. Clinical study of the pulse shows a lowering of arterial tension before a fit, as was found in every one of 18 cases carefully investigated by Voisin and Petit. Such a soft pulse generally exhibited acceleration as well. "I have learned to look upon a soft rapid pulse," says Dr. Hamilton, "with considerable apprehension, for in many epileptic subjects its presence often precedes the development of an attack or series of attacks." The urine in these cases contains excess of indican. Among the therapeutic suggestions given by Dr. Hamilton are hydrotherapy, carbonic acid baths, friction, and massage to aid the elimination of waste products of metabolism by the bowels, the kidneys, and the skin. Meat, coffee, tea, and purin-containing substances should be practically excluded from the dietary. Calomel and boric acid are useful in aiding intestinal asepsis, while among the more valuable cerebral sedatives are chloral, the bromides, and veronal, the last of which should be given dissolved in hot water.

[1] L'Epilepsie, Paris, 1897.

A PECULIAR FEATURE OF THE RECENT FOG.

DURING the time when the recent fog was densest on the ground a curious phenomenon was witnessed in THE LANCET offices and laboratory. The flames of the Bunsen burners attached to gas stoves, as well as of those used for laboratory purposes, which are normally of a bluish tinge, became a bright yellow colour, which on examination with a spectroscope proved to be due to sodium. The characteristic bright yellow colour of the flame was well marked and the usual soda line in the spectroscope was very brilliant. On examining the air no definite evidence either of sulphates or of chlorides could be obtained. The interesting questions are, What was the origin of the sodium and in what form did it exist? It is easy to imagine sea air showing the presence of sodium chloride but it is difficult to understand how under the conditions prevailing during the fog the air could contain particles of sea-water. It is true the fog was very general and possibly some of it had its origin in the sea but then no chlorides could be found in the air. Again, it may be conjectured that smoke might contain sodium salts derived from the combustion of coal but we find that sodium salts are seldom found in coal. We do not know, and have had no means of ascertaining, whether there was a local disturbance at any chemical works or other places where sodium salts are likely to predominate, these salts for some reason or other becoming scattered and thus giving rise to the curious flame phenomenon recorded. It was not due to our own laboratory operations, for the intense yellow colouration of the flame was evident in all parts of the offices and the colouration was just as intense on the lower floors as on the top floor, where the laboratory is situated.

LORD MOUNT STEPHEN'S MUNIFICENCE.

Lord Mount Stephen has for the second time made a princely donation to the King's Hospital Fund for London. It may be remembered that an anonymous donor recently offered to contribute capital producing £3800 per annum to the Fund if the public within a certain date would find capital to produce £10,200 per annum. The £14,000 per annum so raised would have brought the fixed income of the Fund up to £50,000 per annum. The anonymous offer, however, lapsed, the public having made no adequate response to the appeal issued by the Prince of Wales as President of the Fund. Lord Mount Stephen has now come to the rescue and has placed at the disposal of the Prince of Wales to be used for the Fund, bonds worth £200,000, producing £11,000 per annum, "leaving" as he says, only "£3000 a year still to be provided and affording a great opportunity for someone willing and able to do a beneficent act." Lord Mount Stephen's generosity is well known but he has never helped with his magnificently open hand a worthier object. The value of the Fund will be greatly increased by the possession of a fixed income of £50,000 and we can hardly doubt that the remaining £3000 necessary will be forthcoming.

HEREDITARY ANGIO-NEUROTIC ŒDEMA: ŒDEMA OF THE GLOTTIS IN FIVE MEMBERS OF A FAMILY.

WE have recently referred to a case of angio-neurotic œdema in which the larynx and stomach were affected and tracheotomy had to be performed.[1] At the meeting of the Société Médicale des Hôpitaux de Paris on Nov. 3rd M. E. Apert and M. Delille described a remarkable case in which the disease occurred in a hereditary form and five members of a family suffered from œdema of the glottis. On Oct. 8th, 1903, a boy, aged nine years, was taken to hospital in a state of asphyxia with suprasternal and epigastric retraction. There was no sign of diphtheria but the whole of the soft palate and the uvula were transformed by œdema into a voluminous gelatinous-looking appendage which quivered, like the condition seen in acute œdema of the glottis in Bright's disease. There was an œdematous swelling of the sub-mental region. The dorsum of the right foot was white and swollen; the œdema was hard and pitted on pressure but only superficially and momentarily. There was no cardiac or renal disease. The heart was normal and there was no albuminuria. The nature of the œdema would have perhaps been doubtful for a long time if attention had not been attracted to the patient's uncle who accompanied the lad and was wearing a tube in his trachea. He stated that other members of the family were similarly affected. The patient's father and his two paternal uncles suffered from angio-neurotic œdema as well as his only brother. On the other hand, his paternal aunt and his two sisters were not affected. A phenomenon sometimes observed in family diseases was illustrated. The disease appeared at an earlier age in the second generation. Thus the ages at which symptoms

[1] THE LANCET, Dec. 24th, 1904, p. 1802.

appeared in the first generation were 30, 28, and 20 years; in the second generation seven and five years. The patient had suffered from attacks of œdema which at first were rare, then became more frequent. The sites were variable—the upper limbs, the cheeks, and the forehead; more rarely the lower limbs. For the last four months whenever the face was affected swelling of the tongue and uvula followed and then obstructive dyspnœa indicating œdema of the glottis. Every fortnight almost exactly alternatively an attack of œdema of the limbs or of œdema of the face followed by œdema of the glottis occurred, the latter being usually accompanied, as in the patient's father, by pains in the stomach and nausea. When the boy was taken to hospital the temperature was 99·5° F.; in the evening it was 100·5°. On the following morning it was 103·2°, and the œdema of the glottis, uvula, and foot had disappeared; but there was a resistant swelling on the right cheek and a smaller one on the left side of the chin. On the third day there was no œdema of the cheek and the temperature was 99·1°. On the fourth day the boy was taken from hospital, having again a little œdema of the face. The hereditary transmission of angio-neurotic œdema is well recognised. Professor W. Osler has related an instance in which 22 out of 39 persons distributed in five generations were affected.

INJURIES DUE TO GYNÆCOLOGICAL EXAMINATIONS.

IN the *Journal of the American Medical Association* of Nov. 26th, 1904, Dr. Howard A. Kelly has drawn attention to a subject which has received little notice—the infliction of injuries, particularly to the rectum, during gynæcological examination. The organ which is being examined or the structures which lie between it and the examining fingers may be injured. The injury may be due to the delicate nature of the tissues examined or to roughness in examination. A thin-walled papillary cyst, vascular cystic sarcoma of the ovary, an extra-uterine pregnancy, or a pelvic abscess may be ruptured into the peritoneal cavity. Small effusions of blood may be produced under the skin of the abdomen from bruising during examination. Dr. Kelly has never seen injuries of the vagina but he has seen four cases of perforation of the rectum which is a much more delicate structure. All occurred in his hospital practice during the last 15 years. The examiners were not inexperienced students but competent assistants and, in one case, himself. In the first case a married woman, aged 52 years, was placed under ether in order to be curetted for menorrhagia. During examination the finger was pushed through the rectum into the peritoneal cavity. An incision was at once made in the posterior fornix. A vertical rent was found in the rectum four centimetres above the cervix. It was closed with fine silk sutures and recovery followed. In the second case a married woman, aged 63 years, had cystitis. Under ether an examination of the pelvic organs was made and they were found to be normal. The finger was pushed through the rectum into Douglas's pouch. An operation was performed similar to that in the previous case and an iodoform gauze drain was brought out through the vagina. Recovery was complicated by a fæcal fistula which closed spontaneously. In the third case a woman, aged 58 years, had a large left ovarian cyst widely adherent to the intestines and the omentum. During examination, before the anæsthetic was given, Dr. Kelly pushed his finger through the rectum into the peritoneal cavity. The abdominal incision for ovariotomy was made, the tumour was removed, and the rectal tear was exposed and sutured. No soiling of the peritoneum was apparent and drainage was not used. Recovery was uneventful. In the fourth case the patient was a woman, aged 28 years, suffering from menorrhagia. She was anæsthetised for curetting. In the course of a rectal examination the finger was pushed into the peritoneal cavity. A piece of gauze was pushed through the opening and brought out at the anus. On the following day there were symptoms of peritonitis, therefore the abdomen was opened, the tear was sutured, and the pelvis was drained. Recovery slowly took place. Dr. Kelly thinks that the cause of these accidents was the age of the patients (in three averaging 57 years) and weakened muscular tone of the bowel. In one case the patient was very stout, so that not only was a greater effort required to reach deep structures in examination but the tissues were probably more friable. Dr. Kelly recommends that in all cases the peritoneum should be opened and the rent sutured from the peritoneal side. Two layers of fine silk sutures are better than one. An iodoform gauze drain should be inserted through the vaginal vault. The most convenient route is through the posterior fornix unless the abdomen is about to be opened, but if the perineum and the vagina are rigid and contracted an abdominal incision would be preferable. In either case the operator must be skilful in sewing at a distance with long instruments. The sutures should be well placed, penetrating the coats of the rectum as far as the mucosa, and accurate apposition should be secured. As a rule no food but albumin water should be given for from five to seven days. The anus should be thoroughly dilated and if a rectal tube can be tolerated it will serve to carry off the gases and to keep the parts at rest. In order to avoid such injuries rectal examinations should be made with the utmost gentleness. It is well to empty the bowel beforehand. If the patient is then placed in the genu-pectoral position and a speculum is introduced so as to secure a maximum of distension with air, on placing the patient in the dorsal position the rectum will be found expanded and in closer relation to the pelvic structures. An important point, not sufficiently emphasised, is that the examiner should avoid the natural impulse to invaginate the wall of the rectal ampulla on the finger and push it high in the pelvis. This error will not occur if, after introducing the finger into the ampulla, the next step is to seek the so-called "third sphincter"—the rectal valves behind the cervix. The finger should be introduced between these, then up into the pelvis where the bowel lies in contact with the posterior surface of the uterus and left broad ligament. The examiner should be at ease and the fingers should be flexible during the examination. If the whole arm is made rigid in the effort to push in the perineum in order to gain a few centimetres the hand is also apt to become rigid. Dr. Kelly avoids rigidity of the arm by resting his elbow against his hip and pushing in his arm from the hip.

JUVENILE TABES AND OTHER HEREDITARY SEQUELÆ OF SYPHILIS.

CASES of juvenile tabes are still very rare. After careful search Marburg of Vienna (1903) could only collect 34 cases. In the *Journal of Nervous and Mental Diseases* for December, 1904, Dr. J. Grinker, lecturer in neurology at the North-Western University Medical School, U.S.A., records a remarkable case the family history of which is also full of interest in regard to the hereditary aspects of nervous diseases. The patient's mother came of a long-lived family, free from nervous or mental disease in the ancestry. She enjoyed good health, was married at the age of 18 years, and had a son who was in perfect health and was now 38 years old. Her husband died 15 months after the marriage from a fever. The woman remained a widow for 12 years when she married again, at the age of 31 years, her first cousin, a young man who had contracted syphilis four years previously and who had been in indifferent health since then. He was mentally normal but drank to excess and died after 22 years of married life, probably from chronic tuberculosis.

The issue of this unfortunate marriage, says Dr. Grinker, comprised three children whose conditions illustrate the various hereditary sequelæ of syphilis in a striking way. The eldest, a male, was born in May, 1878, and developed into a typical case of juvenile tabes dorsalis; the second, also a male, born in October, 1880, manifested general paralysis during adolescence; and the third, a female, showed signs of infantile cerebral syphilis soon after she was born in 1882. The woman not only brought forth these hereditarily degenerate children but in the course of years developed into a case (rare in women) of tabes dorsalis herself. Her illness began 12 years ago with numbness and tingling of the feet and a sensation as though she was walking on a "stuffed cushion." Then followed paræsthesiæ ("pins and needles" and dull sensations of pain) in the legs. "During the last ten years she had the classical lightning pains of tabes, which were mostly at night." For the past five years similar shooting pains had occurred in the upper extremities. Vision was gradually lost in the right eye and subsequently in the left eye, so that the patient became at length totally blind. For seven years she had had the abdominal pains or "crises" of tabes—"twisting and grinding of the stomach and intestines," as she described them. Gastric crises with vomiting and intense agonising pain in the epigastrium lasting from 12 to 24 hours were also experienced. At present (1903), says Dr. Grinker, she is "a small, poorly nourished old lady of apparently 65 or 70 years, though her real age is 57." She is the subject of chronic locomotor ataxy, with absent knee-jerks, ataxia of station and of gait, and numerous peripheral areas of cutaneous analgesia. Complete optic atrophy is present. Intelligence and memory are good. The sphincters are beginning to show slight incontinence. The lightning pains, Westphal and Romberg symptoms, optic atrophy, gastric crises, paræsthesiæ, and absence of motor involvement make this an undoubted case of tabes dorsalis, while the children of the woman illustrate various pathogenic aspects hereditarily transmitted. This patient died in April, 1904, from coma.

THE medical officer of health of the Cape Colony states that for the week ending Dec. 10th, 1904, the condition of plague in the colony was as follows. At Port Elizabeth 2 cases were discovered during the week, both being of European females. Of 153 rodents bacteriologically examined 4 rats and 11 mice were found to be plague-infected. Plague-infected rodents continued to be found in East London. Elsewhere in the colony no plague infection in man or other animals was noted. As regards the Mauritius a telegram from the Governor to Mr. Lyttelton received at the Colonial Office on Dec. 30th states that for the week ending Dec. 29th there were 19 cases of plague and 11 deaths from the disease.

THE opening lecture of the spring session of the North-East London Post-Graduate College will be given at the Tottenham Hospital, N., on Jan. 10th, at 4.30 P.M., by Mr. John Langton, consulting surgeon to the hospital and to St. Bartholomew's Hospital. The subject of the lecture, which is open to all medical practitioners, is "Points which should be considered in Determining the Prospects of the Operation for the Radical Cure of Hernia."

Major Robert Bird, I.M.S., surgeon to His Excellency the Viceroy and Governor-General of India, has been appointed a Companion of the Most Eminent Order of the Indian Empire.

OUR Special Sanitary Commissioner, who recently visited the St. Louis Exhibition, took the opportunity while in the neighbouring State to investigate thoroughly the famous Chicago stockyards and the condition of the celebrated abattoirs. It will be seen that our representative, speaking from a wide experience of such matters in all countries, was not favourably impressed with the sanitary regulations in force for the slaughter of the animals.

THE annual dinner of the Laryngological Society of London will take place at the Imperial Restaurant, Regent-street, London, W., on Friday, Jan. 13th, at 7.30 for 8 P.M.

Mr. W. H. Cross, who has retired from the post of clerk of St. Bartholomew's Hospital after 38 years' service, has been placed upon the commission of the peace for Middlesex.

MALINGERY.

THE art of shamming disease has reached a high level of perfection. This is mainly to be attributed to the fact that the rewards of proficiency are great. Fresh in the minds of all is the recent case of a professional beggar in the City of London whose voluntarily paretic limbs stirred up the lively compassion of the passers-by, even of the poor, so that charitable gifts flowed into his ready palm. This case has excited some little attention chiefly because the police have prosecuted him successfully but he is only one of very many. So remunerative are these attempts on the charity of the benevolent that there is great danger that the publication of the details of the case that we have mentioned will rather induce others to follow his example than that his punishment will act as a deterrent. In one part of London it is said that ready-made ulcers on pieces of adhesive plaster can be obtained at a reasonable price and these are greatly in vogue with professional mendicants, for an outward and visible sign, such as an obvious ulcer, is far more efficacious in exciting the almsgiving propensities of the tender-hearted than any amount of internal pains. Paralysis, too, is a fairly good argument in favour of charitable assistance, for the giver contrasts his powers of movement with the weakness of the afflicted one, and as paralysis of a kind is readily counterfeited it is much in favour with the begging fraternity, though a great deal of of it will not stand a careful medical examination.

Many are the motives which incite a man to pretend to be suffering from a disease with which he is not afflicted. Probably the commonest motive is the wish to obtain contributions from the charitable and thus to prevent the necessity for working which is extremely distasteful to these professional beggars. Ulcers and paralysis are the usual forms in which this motive manifests itself and to these we have already alluded. Fits of all kinds are, however, frequently simulated, especially fits of an epileptiform nature, and in cases where the malingerer has had opportunities of observing someone afflicted with epilepsy the resemblance to the true epileptic seizure may be extraordinarily great; the frothing of the mouth is usually brought about by means of a small piece of soap, the discovery of which in a "patient's" mouth would, to say the least, cause the fits to be looked upon with grave suspicion. The fits are usually also rather overdone and it is a common failing of the malingerer that he is not satisfied with a reasonable amount of disease. Another motive nowadays for simulating disease is to obtain admission into a hospital. The comfort, the rest, and the luxuries to be obtained in hospital make a deep impression on many patients, so that they leave with regret to return to their former work. Can we wonder, then, that some of them, lamenting the fleshpots of Egypt, should wish to return? All that is necessary is to possess some severe manifestations of disease and every resident medical officer of a hospital must have met with many cases of patients endeavouring to obtain admittance on account of some wonderful pain or spasm and doubtlessly many a time has he been deceived. This form of malingering is especially likely to be successful when there is some obvious lesion which may form a basis for the superstructure derived from the patient's imagination. In one case a young man a few years ago

received a severe blow on the head and even now some irregularity can be detected on the skull. He describes attacks of Jacksonian epilepsy and as the lesion is situated over the motor area of the corresponding side of the body he readily gains admission into a surgical ward. He will even agree to have an operation performed for the removal of the damaged portion of the cranial bone which is supposed to be causing his fits, though curiously he never has a satisfactory fit except when alone. His custom is to decline the operation when the day fixed for its performance arrives and on leaving the hospital he attempts, generally successfully, to repeat the performance elsewhere. One of the most inveterate of these malingerers is, or rather was, a man who had a genuine paralysis of the left arm with some weakness of the leg on the same side. He had tasted the delights of hospital life and as nearly every sojourn in the hospital was followed by two or three weeks at a convalescent home in the country or at the seaside he had an extra inducement to endeavour to be readmitted into a hospital. It was his custom when he felt inclined for hospital treatment to enter a tavern not far from a hospital. Here after a short time he would be seized with a "fit," and then he would be carried in an apparently unconscious or semiconscious state into the receiving room of the neighbouring hospital. The house surgeon would immediately detect the unilateral paralysis and would not unnaturally diagnose cerebral hæmorrhage or some other sudden interference with the circulation of the brain. The patient would be admitted at once and in a few weeks part of the paralysis would pass off leaving, however, some definite permanent loss of power, especially in the arm. Then would follow the convalescent home and later a return to the hard outer world where the unpleasant necessity of working would tend to obtrude itself on his mind. Then would come a visit, similarly inaugurated, to another hospital, with the same cycle of events. The number of hospitals in London being limited, it happened more than once that he returned to a hospital before the remembrance of his previous visit had quite died away. Some former clinical clerk who had become a house physician remembered his face or his history, which conscientiously he never varied, and then his well-planned enterprise was liable to come to a sudden and untimely end.

It is, however, in connexion with the naval and military services that the art of malingery finds its chief exponents. Indeed, the word "malinger" was first applied to the attempts of soldiers to evade arduous or unpleasant duty. It is of interest to notice the difference that exists between countries in which conscription prevails and those in which only voluntary service exists. In the former the most strenuous exertions are sometimes made to escape service and since most deformities disqualify for admission recruits, or rather those who were liable to serve in the army, have not hesitated to inflict on themselves the most severe injuries in order to avoid service. In the days when it was necessary for a soldier to bite off the end of the cartridge in loading his musket it was no uncommon event for a man to have one or more teeth extracted or filed down so as to obtain exemption. In countries such as our own at the present time, where voluntary service exists, we are more likely to find applicants for enlistment who attempt to hide diseases. In all countries, however, many soldiers, whether they have been called to the service by conscription or have entered it voluntarily, earnestly desire to leave it. There is an old tale, in all probability true, that illustrates well the trouble which such a man will take to escape from military service. A soldier was seized with paralysis of the right arm; the loss of power came on suddenly and without obvious cause. Malingering was suspected but all the efforts of the surgeon of the regiment were unavailing; no proof could be obtained that the paralysis was feigned. The man was examined by two medical boards and ultimately he was given his discharge. As he went off from the barracks on the top of the coach (it was in the days before railways) he waved a hearty good-bye to his comrades with his paralysed arm. Probably the best example of the perseverance which men will display in the attempt to leave a service which they detest is to be found in a case under the care of Cline. The patient was a sailor in the British Navy and it is worthy of note that he was a "pressed" man. He fell on to his head and a slight depression of the skull was produced. He immediately became unconscious and all efforts to rouse him failed. He lay quietly in his hammock and never moved. He seemed deaf to all sounds and at no time uttered any word. He was able to swallow food, both solid and liquid, and indeed he made signs with his lips and tongue when he wanted nourishment. He was brought back to England but no improvement followed and the "unconsciousness" lasted for 13 months. Then it was resolved to raise the depressed portion of bone. Flaps were made, a trephine was applied, and the bone was cut through. An elevator was then introduced to raise the bone and as the bone was lifted up consciousness suddenly returned to the patient and he spoke. At the time of the operation most of the onlookers accepted the case as genuine but no one would nowadays venture to support the idea that the patient really lay unconscious for 13 months, suddenly regaining consciousness on removal of the depressed bone. There can be no doubt that the man was a malingerer and adopted this arduous method of leaving a service into which he had been forced. The amount of pain and discomfort which malingerers are willing to endure to obtain their discharge is almost incredible but the facts are well attested. A limb has been held in a fixed position for many months and not even the application of the actual cautery has sufficed to move it. Many men have chopped off some fingers and have claimed that it was an accident. Mental derangement of one sort or another is a favourite form of malingery but the results usually resemble the popular or stage idea of insanity rather than the true products of mental alienation. It is not uncommon for the malingerer to combine two forms of insanity and this may be of value in detection. Still, it is often very difficult to be certain that a patient is shamming. There are, however, some phenomena which cannot be simulated. It is impossible for a sane man to imitate successfully the persistent insomnia which often occurs in the insane; the impostor cannot put off sleep beyond the second or third day.

Another frequent motive for malingering is to attract attention not for the purpose of obtaining money but merely to gain notice. This motive is most frequently seen in young unmarried women. The most common manifestation is to be found in the skin, where ulcers, bullæ, and other lesions suddenly appear. Simulated joint affections are also not rare and there are many other forms. These cases merge imperceptibly into hysteria and indeed in many hysteria is combined with the wish to deceive. It is not improbable that in some of these patients there is a certain degree of cutaneous anæsthesia which renders the self-mutilation more easy of accomplishment. There are other causes for simulating disease or injury. Sometimes it is done to avoid punishment, sometimes to wreak vengeance on another person who is accused of having inflicted the injury. To obtain compensation for injury in a railway accident several lesions may be simulated and especially those obscure and ill-defined conditions which have been attributed to "spinal concussion." These latter form a large and very important class the detection of the fraud of which is often most difficult. Sad to relate, many of the attempts to imitate disease have led to serious and irreparable results and even to death itself. A man excited an ulcer in his leg by means of a copper coin and later gangrene appeared and required amputation below the knee. In endeavouring to excite hæmoptysis a man swallowed a cork into which pins had been inserted. He spat up blood and became very emaciated and then suddenly died from hæmorrhage. At the necropsy it was found that the cork and pins had lodged at the junction of the pharynx and œsophagus and that the pins had ulcerated through the œsophageal walls and had opened into the common carotid artery on both sides. Children are great adepts at feigning maladies and they frequently display a surprising acquaintance with the symptoms of disease. A little boy, five years old, complained that his urine was bright red, and so indeed it was, but it was found to be due, not to any blood colouring matter but to the red dye of his flannel shirt, a portion of which he had soaked in it. In another case a little girl vomited fæcal matter and this symptom only ceased when she was told that such methods were not allowed in the hospital.

The detection of malingering is often no easy matter and no general rule can be laid down which will be applicable to all cases. The mere threatening of severe methods of treatment is sometimes successful but frequently fails. The threat of the application of the actual cautery has cured paralysis but cases have been recorded where malingerers

have endured the cautery on several occasions. A man who simulated blindness was placed on the edge of a jetty and told to walk straight forward. He stepped out and fell into the water, for he knew that those who were testing him dared not let him drown. In another case, however, a man who seemed to have paralysis of an arm allowed the amputating knife to be placed close to it without flinching but when thrown into the river he struck out with both arms and swam. A very useful method of detection is the suggesting of new signs and symptoms to the patient. The surgeon remarks—say in the case of a paralysed arm—in the hearing of the malingerer that it is strange that the little finger is flexed, it ought to be straight. In all probability at the next visit the little finger will have assumed the suggested position. The more *outré* and irregular the fresh symptoms suggested by the surgeon the more definite is the detection. In general anæsthesia we possess a valuable means of discriminating in certain cases between true and false paralysis or contractures. While the patient is just going under or recovering from anæsthesia the "paralysed" limb may be seen to move freely. It is well always to remember the possibility of a disorder being feigned, especially when a strong motive exists, for by this vigilance cases may be detected which would otherwise escape notice. In the detection, however, of cases which we imagine to be examples of malingery it is important that no methods should be adopted which can do harm, should our supposition be groundless, for it is far better that many impostors should succeed than that one real sufferer should be condemned uselessly to undergo further pain. It is no more than a mistake to be deceived by a malingerer, it is almost a crime to deal harshly with one who is really afflicted with disease.

ASYLUM REPORTS.

London County Asylum, Hanwell (Report for the year ending March 31st, 1904).—The average number of patients resident during the year was 2555, comprising 998 males and 1557 females. The admissions during the year amounted to 614—viz., 265 males and 349 females. Of these 518 were first admissions. Dr. R. R. Alexander, the medical superintendent, states in his report that the three chief causes which operated in the production of insanity among the admissions were alcoholic intemperance (21 per cent. of males and 12 per cent. of females), heredity (19 per cent. of males and 23 per cent. of females), and previous attacks (12 per cent. of males and 23 per cent. of females). 17 per cent. of the men and 2·5 per cent. of the woman were afflicted with general paralysis, as against 18 per cent. and 3 per cent. respectively in 1902. The number of cases discharged as recovered during the year amounted to 209—viz., 90 males and 119 females, or 8·2 per cent. of the average number resident. The deaths during the year amounted to 258, or 10·1 per cent. as calculated on the same basis. Of the deaths eight each were due to colitis and renal disease, 18 each to pneumonia and cancer, 20 each to cardiac disease and cerebral softening, 39 to senile decay, 39 to pulmonary and other forms of tuberculosis, 47 to general paralysis, and the rest to other causes. "The most remarkable feature of the general health of the asylum was the unprecedentedly high death-rate during the first quarter of the year. In that period we had 99 deaths (42 males and 57 females), or 38 per cent. of the total number of deaths of the year. ..... I am quite unable," adds Dr. Alexander, "to account for this death wave. It may have been partly owing to an irregular form of influenza, as we then had some undoubted cases of that disease ..... but most of the deaths had no apparent relationship to influenza and there was certainly no inclemency of the weather to account for the high mortality." The deaths included 33 patients (12 males and 21 females) over the age of 70 years. It is gratifying to add that a decline has been observed to occur in the mortality-rate of colitis during the past three years. The Commissioners in Lunacy have not visited the asylum during the year and there is no report. Owing to the uncommonly heavy rainfall of the year 1903 and the incapacity of the drains to carry off the suddenly produced and torrential volumes of rain water on May 30th and July 18th, two of the female wards were submerged. The flood invaded the female infirmary ward No. 7 to the depth of about 18 inches. All the patients (45 in number) had to be carried into other wards and retained there until the damage to the floor was repaired. The flood caused considerable damage also to other parts of the asylum. The committee of management states in its report that further measures have been taken to secure the safety of the inmates in the event of an outbreak of fire, including the provision of alternative exits for five female and four male wards, the formation of an additional fire station on each side of the asylum, and improvements in the fire-alarm system. Improvements in the boiler plant have been made and the cost of repairs, alterations, and improvements has amounted to £6982.

COCOA CHEMICALLY AND PHYSIOLOGICALLY CONSIDERED.

I.

ALTHOUGH cocoa was introduced into this country some five centuries ago and several years before either tea or coffee was known, it enjoyed but little popularity until comparatively recent days. It is an important fact, however, that cocoa is now in very great demand and official returns show that its consumption has increased enormously in this country in particular, the demand for it having given rise to a very considerable expansion of trade. There must, however, be some more special reason for this selection of cocoa as a beverage than can be explained by mere commercial enterprise. The present popularity of cocoa as a beverage and the fact that so many give it preference to tea and coffee raise some important physiological questions which claim more attention than they have hitherto received.

All three beverages—tea, coffee, and cocoa—contain well-known and well-defined stimulating principles, but there are marked and important differences of chemical composition between the three substances as might be expected considering that coffee and cocoa have their origin in the seeds of a plant while tea consists of a leaf. Moreover, all these undergo considerable modification during their manufacture. Coffee is roasted, tea is fermented and dried, and cocoa goes through a process of fermentation and roasting, and besides is submitted to a further treatment by which a considerable quantity of its fat is expressed. Thus the development of the flavour and the peculiar character of coffee is brought about by merely roasting, but in tea and cocoa both a fermentative process and a species of roasting are employed to the same end. These processes, though directed chiefly to the development of æsthetic qualities, are, of course, not without effect upon the chemical composition of the product and this effect has probably a dietetic significance. In coffee there are a loss of caffeine, the stimulating alkaloid, and a development of oil; in tea there is reason for believing that the tannin or astringent principles are rendered less soluble by the fermentative process (green tea is not fermented and yields much more tannin than does black tea); and in cocoa the initial bitterness of the bean is considerably reduced and its colouring is deepened, while roasting the cocoa according to the degree to which the process is carried intensifies the colour still more, and develops at the same time an oil of pleasing character much in the same way as does roasting coffee. In cocoa also some of the tannin is apparently changed into a colouring matter termed "cocoa red." Even in their original form, however, the proportion of theine and tannin differs widely in tea, coffee, and cocoa, and it is improbable that the tannin in the finished products is identical in kind. The tannins are a very numerous class of bodies, varying widely in character, and it is probable that coffee, tea, and cocoa contain each a different tannin or astringent principle, presenting not only different chemical but different physiological characteristics also. Tea certainly gives the most powerful astringent infusion, coffee coming next, while cocoa appears to possess quite a feeble astringency. It may be easily surmised that it is to this latter property that cocoa owes its negative effect upon digestive functions. Tea contains 10 per cent. and upwards of tannin, and coffee and cocoa contain 4 per cent. As regards their content of alkaloid, tea yields from 3 to 4 per cent. of caffeine, coffee 1 per cent., and cocoa

about 2 per cent. of theobromine, an alkaloid closely allied to caffeine.

Apart from these considerations cocoa is consumed not in the form of a clear liquid, as are both tea and coffee, but in the form of an infusion containing in suspension, in a more or less finely divided state according to the particular mode of its manufacture, the whole of the cocoa. In other words, while the teaspoonful of tea or the teaspoonful of coffee is not entirely represented in the cup the teaspoonful of cocoa is. The cupful of tea or coffee infusion represents but a fraction of the tea or coffee used; the cupful of cocoa contains the whole of the cocoa used. On the one hand is a clear infusion, on the other an emulsion or infusion containing suspended matters in a more or less finely divided state. Whatever differences exist therefore between tea, coffee, and cocoa, the last, by the manner in which it is employed in making a beverage, must necessarily be more economical in use. This is a point of some importance which must be considered when making a comparison between the chemical composition and the dietetic value of the three products. Tea and coffee may thus be said to resemble meat extracts containing merely the stimulating principles of the prime substance while cocoa may be placed on the footing of the meat itself assuming that cocoa contains food materials. As a matter of fact, recent experiments on the behaviour of cocoa under the influence of digestive ferments have convinced us that cocoa is *per se* a valuable food yielding on digestion hydrolysed products which are available for the repair of the waste of the body. We shall return, however, to this point in a future number when our experiments are concluded.

A good preparation of cocoa is often recommended where tea and coffee have been shown to disagree and a great proportion of the public has been led to abandon tea and coffee in favour of cocoa, probably for a sound physiological reason. Leaving out all question of the pernicious habit of excessive tea or coffee drinking it remains to consider why it is that cocoa often is suitable when tea or coffee disagrees. As regards influence on digestion it is, at any rate, fairly well established that cocoa does not affect unfavourably either salivary or gastric digestion, and while tea and coffee reduce the absorbing capabilities of foods (probably by the hardening action of the astringent principles on the proteids) cocoa actually increases this power. Chemically, therefore, there may be tannin in cocoa but physiologically it behaves as though it had lost its astringent property. It would appear, therefore, that cocoa, far from being harmful, may be beneficial in acid dyspepsia. The observation has, in fact, been made that cocoa is tolerated and is even of advantage in enfeebled digestive power when tea and coffee set up serious interference with the digestive process. Again, the action of cocoa on the nervous system is very much less than that of tea or coffee. Cocoa differs in one very marked particular from tea and coffee in that it contains a very high proportion of fat. In raw cocoa this fat amounts to about 50 per cent.; in the manufactured article it is about 30 per cent. In spite of its low melting point—a characteristic which, as a rule, is in favour of the digestibility of a fat—cocoa fat has been asserted to be difficult of digestion. Distinct proof of this appears to be wanting and it is probable at any rate that cocoa fat is very readily emulsified and split up by the action of the pancreatic juice. One way of reducing the proportion of fat in cocoa has consisted in mixing starch with the cocoa—a proceeding which obviously attenuates the cocoa and whatever dietetic value it may possess is thus considerably diminished.

We may next turn to the approximate composition of the cocoas on the market. Excepting those cocoas which are admittedly mixed with substances foreign to cocoa itself the cocoas of the leading firms exhibit according to our analysis the following ranges in composition.

TABLE I.

Moisture	3·0 to 8·0 per cent.
Nitrogenous matter (N × 6·3)	19·0 ,, 20·0 ,,
Fat	26·0 ,, 31·0 ,,
Mineral matter (ash)	3·9 ,, 8·8 ,,
Starch	2·7 ,, 7·3 ,,
Cellulose	6·8 ,, 7·2 ,,
Other non-nitrogenous matters	29·0 ,, 31·0 ,,
Theobromine	1·7 ,, 2·0 ,,

There are slight variations in the percentage of moisture which affect not very materially the proportion of the other ingredients. The variation in the percentage amount of mineral matter is in some cases considerable and this depends upon the method adopted in the manufacture of the cocoa. The preparation of cocoa from the raw material is a comparatively simple operation. It is roasted, ground, and the fat is pressed out while hot. The pressed cocoas are then finely ground. The degree of fineness to which the cocoa is ground is a matter of considerable dietetic importance as will appear from further experiments which we shall record. Cocoa so prepared commonly exhibits an acid reaction and has a tendency to deposit more or less rapidly a considerable sediment in the cup. Cocoa is not, strictly speaking, soluble in water; but by certain processes of manufacture it can be reduced to a largely soluble state by first of all grinding it exceedingly fine and then by increasing the proportion of its natural salts. Such cocoa is not acid to test paper owing to the neutralising action of the alkaline organic salts and yields practically no sediment in the cup, the exceedingly fine particles being in a state of perfect suspension, a condition which is assisted by the salts. This important modification in the method of preparation accounts for the variations in the amount of mineral salts found in the various commercial cocoas. There are thus practically two classes of cocoa in the English market—one which is simply roasted, ground, and the fat expressed, and another in which in addition to the above the natural salts are increased in order to raise the true solubility of the cocoa.

It has been freely stated that some cocoas in the English market are largely manipulated with alkali. Our experience gives no support whatever to such a statement. On the contrary, of 11 cocoas purchased in the open market we have not found a single one to contain anything in the nature of an alkali. They were either acid in reaction or perfectly neutral as regards alkali. By alkali we mean either the carbonates or hydrates (caustic) of the so-called alkaline metals (potassium and sodium). Moreover, in no instance was the slightest trace of soap found, formed by the action of alkali on the cocoa fat. The charge of using alkalies in the preparation of cocoas has chiefly been made against the Dutch manufacturers and there are some very excellent cocoas sold in this country which are manufactured in Holland. We give below a list of the cocoas which we have examined and the results of their analysis as regards the question of alkali in the cocoa itself, total mineral matter, and the alkalinity of the ash.

TABLE II.

Cocoa.	Total mineral matter (ash). Per cent.	Alkalinity of ash reckoned as potash. Per cent.	Alkali in cocoa.
Bensdorp's Soluble (II.)	7·10	2·35	None.[1]
Barry's Essence (I.)	4·60	1·08	,, [2]
Van Houten's Soluble Cocoa (II.)	8·80	3·14	,, [3]
Epps's Cocoa Essence (I.)	3·90	0·75	,, [4]
Fry's Concentrated Cocoa (I.)	5·50	1·67	,, [5]
Cadbury's Cocoa Essence (I.)	4·00	0·65	,, [6]
Mazawattee Cocoa (II.)	5·50	2·08	,, [7]
Schweitzer's Cocoatina (II.)	5·70	2·03	,, [8]
Suchard's Soluble Cocoa (II.)	6·40	3·55	,, [9]
Rowntree's Elect Cocoa (II.)	7·40	3·14	,, [10]
Loose Cocoa (II.)	7·70	2·96	,, [11]

[1] Slightly alkaline potassium salts, but neutral as regards free alkali. [2] Slightly acid reaction. [3] Slightly alkaline reaction due not to alkali but to organic salts of potassium and phosphates; otherwise perfectly neutral. [4] Acid reaction. [5] Acid reaction. [6] Acid reaction. [7] Neutral reaction. [8] Neutral reaction. [9] Neutral. [10] Neutral, rich in organic salts of potassium, including phosphates. [11] Neutral, rich in organic salts of potassium, including phosphates.

The Roman numerals in parentheses indicate the class to which the cocoa belongs.

Certainly as regards the well-known manufacturers of cocoa which is sold in this country, whether English or Dutch, there is here no evidence whatever of the use of alkalies in the preparation of the cocoa. There is abundant evidence, on the other hand, showing that the natural organic salts of the cocoa have been materially increased as regards both some of the English and the Dutch manufactured cocoas. These salts are converted into carbonate on incineration. The natural salts of cocoa consist of tartrates, malates, or citrates of potassium, which all give a slightly alkaline reaction and carbonate of potash on ignition. Besides these salts there

is invariably present also the important alkaline salt potassium phosphate. Of such cocoas (Class II. in the second of the tables) it would be just as true to say that they contain alkali as it would be of wood because on burning it yields potash or potassium carbonate in the ash. Again, tea yields a strongly alkaline ash due to potassium carbonate derived from the organic potassium salts in the leaf but it would be obviously absurd to conclude that potash or alkali exists as such in tea; in fact, all vegetable matter more or less contains organic salts of potassium which decompose into the alkaline carbonates found in the ash. While we are able to state that the cocoas sold by well-known manufacturers in this country do not as a rule contain alkali, we are aware that alkali (ammonia, soda, and potash) is sometimes employed for the purpose and that this is especially the case with cocoas of German manufacture chiefly sold in Germany.

In a future number we propose to give some experimental evidence which we have been able to obtain bearing upon the food value of cocoa and particularly upon the digestibility of its constituents as determined in experiments *in vitro* with digestive ferments. We may add that the indications so far are in favour of pure cocoa being a valuable and complete food, although it must be borne in mind that the quantity of cocoa contained in a cupful of cocoa is obviously small.

(To be concluded.)

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 6, 1827.

HÔPITAL ST. LOUIS.[1]

This Hospital, which was built during the reign of Henry IV., owes its origin to the prevalence of some fatal disease which reigned in Paris in 1606, and was supposed to be contagious; the Hotel Dieu, at that time the only public hospital, was so incommodious and badly managed, that it served only to accelerate the death of the unfortunates sent into it. St. Louis, at the time of its construction, was at a distance from any populous quarter of the city, and to prevent more effectually the spread of the supposed contagion, the architect surrounded it with a court 100 feet wide, enclosed within double walls. The hospital forms a parallelogram of 360 yards by 240, and thus presents a superficies of 259,200 feet. The principal buildings are situated around an area of 300 feet square toward the centre of the enclosure, and are two stories high; the attics of the building are large, but unemployed.

This hospital contains 1100 beds, and is destined principally to diseases of the skin. Some surgical and epileptical cases are admitted, but the number of beds occupied by these patients seldom amounts to more than 160.

The principal medical officers are Alibert and Biett, and the principal surgical, Richerand and Jules Cloquet.

Dr. Gales, who was formerly apothecary to the hospital, imagined that he had discovered animalculæ in the vesicles of the itch; he contrived to convince Latraille of their existence, as well as the greatest part of the members of the committee appointed by the Academy of Sciences. In the Dictionary of the Medical Sciences. (Art. *Gale*) there are engravings given of these insects, which are dignified with a peculiar order and genus. ..... Many of the ancients considered that the proximate cause of the itch was the presence of an animalcula between the epidermis and skin. Redi, an Italian, described some insects which he thought he had seen in the itch pustules, as early as 1685; the same assertion has been repeatedly made by Fabricius Hildanus, Gaubius, and Morgagni, but the subject was almost unknown to the public, until Dr. Gales renewed the investigation, and declared that he had seen these beings in thirty-five patients at St. Louis. He engaged a celebrated draughtsman to copy some of them, and these were afterwards shown to the academy; a committee was appointed to examine into the matter, and they agreed in saying that they also had seen them. Latraille in his Genera Crustaceorum, and, indeed, most entomologists since his time, have named them *sarcoptes scabiei*, and placed them with the family of the *acari*. Linneus has placed them in the class aptera, and has called them *acari scabiei*. Geoffroy has called them *cirons de la gale*, and De Geer, *mittes de la galle*. They have been drawn in the Dictionnaire des Sciences Medicales, and are represented as having six legs, and two small horns, magnified 250 times, so that they appear as large as ordinary beetles. Alibert has carefully examined many scabious patients, and declares he could never find any sarcoptes or acari; and Biett, who is a very careful and reflecting man, has examined a large number of patients with the person employed by Gales to draw the insects, but they could never discover any in the vesicles under any circumstances. The painter afterwards owned to Biett that he had never seen any one of the insects in the itch vesicles or pustules, but always outside them. Lugot continued these investigations in 1819, 1820, and 1821, with the strongest lens, but with the same result as the preceding. This is strong authority against the *vital itch*, and goes a great way to upset the force of the observations of Gales and the others.

[1] Excerpts only have been transcribed.

CHICAGO.

THE STOCKYARDS AND PACKING TOWN; INSANITARY CONDITION OF THE WORLD'S LARGEST MEAT MARKET.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

IT was in mid-November that I left St. Louis for Chicago. The train first followed the banks of the Mississippi and went under the great St. Louis bridge. The immense accumulation of railway wagons and the multiplicity of railway lines were remarkable. Very ugly red brick warehouses often blotted out the sight of the majestic Mississippi, while numerous yellow refrigerator railway vans suggested the tasteless meat and unappetising *menu* of the American cold storage dinners. During the whole day, in spite of the advanced season, beautiful summer weather prevailed. The country was flat and uninteresting. The leaves still hung to the trees, though in a dried-up condition. In the dining car roses decorated the tables and after so much sunshine and such summer experiences the contrast on arriving was the more painful to note. At Chicago the sky was black, though there was no fog or mist, and huge clouds of dense smoke spread over the city like a pall. The streets were dark and gloomy and being hedged in on either side by ugly houses ranging from ten to 20 storeys in height it seemed, on leaving the station, like penetrating some sinister ravine rather than walking along the best streets of a great and wealthy city. But for the gas burning in the shop windows and various electric advertising contrivances it would have been quite difficult to see. At rare intervals a little pink speck indicated that some abortive effort had been made at electric lighting and that was all the trace noticeable of municipal enterprise. Miserably slow horse tramcars rumbled along badly paved dark streets where desperate men not infrequently stop and rob pedestrians. Murders have increased fourfold in America within recent years and such being the case the streets should be well lighted. This, my first impression, did not lead me to anticipate that any very progressive information or example would be available at Chicago. Yet I had soon to recognise that a very bold and gigantic scheme was in process of execution to divert the drainage which used to fall into Lake Michigan and to direct it inland, where it will not injure the inhabitants of Chicago, whatever harm it may do to those who live elsewhere. By this means an inland river course is contaminated but the Chicago water-supply, which is derived from the lake, will no longer be exposed to the risk of receiving some of the city sewage. Then, again, it must be admitted that according to the official figures the death-rate is not high if Chicago is compared with other large industrial centres. The sanitary authorities have also much to show that indicates careful organisation to secure prompt action in dealing with cases of infectious disease, so that early isolation and thorough disinfection may protect the community at large from the danger of epidemics.

In spite of all this it is at once evident that those inhabitants of Chicago who take an earnest interest in the

social conditions of their great city in any case are not satisfied. One great stain is ever present; it is always in sight and sometimes it is not only seen but it is smelt and felt. The greatest of the local industries, that for which Chicago is celebrated all over the world, is the principal cause of complaint. It is from the stockyards and "packing town" that the ever visible black smoke emanates which conceals the sky and the sun from that part of Chicago over which it is spread. Wherever the wind blows the smoke, there it deposits soot, blackens the houses, the clothes, and the hands and the faces of the people. With it come unpleasant odours of a meaty nature and as of burnt animal matter which seems to parch the throat and this helps to explain the difficulty that many inhabitants of Chicago experience in articulating their words distinctly. But the smoke nuisance, serious as it is, only constitutes the outward and visible sign—visible from an immense distance—of the abominations perpetrated within. The providing of food, of every form of animal food, should be a matter of public concern. It is a sacred trust, for so much depends on the sanitary condition of slaughter-houses and the efficient inspection of meat. In Great Britain and all over Europe the feeling gains ground that private slaughter-houses should be abolished and model public abattoirs instituted in their stead either by the State or by the municipalities. In previous studies of this subject descriptions have been given showing how at Berlin the State and the municipality combined to establish a model cattle market and abattoir.[1] An account likewise appeared relating how so far back as the year 1836 the municipality of Brussels built a public abattoir and abolished all private slaughter-houses.[2] It was just about this same period that from being merely a fort and a settlement Chicago reached the more dignified position of incorporation as a city and in 1837 it had a population of 4170 inhabitants. What an immensely wealthy town Chicago would have been to-day had it then and there followed the example of Brussels and built its own abattoir. But it need not have adopted such a progressive policy so early in its history. In 1850 there were but 29,963 inhabitants, though by 1860 this number had grown to 109,206. There was then still time to act and it was not till 1870 that Chicago became one of the leading commercial centres of the United States. There were then 306,605 inhabitants. The next year a large portion of the city occupying three and a half square miles, and on which stood 17,500 buildings, was burnt down. The property destroyed was estimated at £40,000,000 and some 100,000 people were rendered homeless. Here, then, was an opportunity for the adoption of heroic measures, and in view of likely future local developments the most obvious of all such measures was the prohibition of private slaughtering so as to secure at once the protection of public health and the creation of public revenues. In 1903 the population of Chicago was estimated at 1,873,880 and the killing to provide meat for such a number of people represents a large and remunerative business. But this is a very small part of the killing done at Chicago. The supply of animal food by cold storage, by curing, pickling, or tinning is provided at this centre for all parts of America—indeed, for all parts of the world.

It is estimated that between 3,000,000 and 4,000,000 cattle are taken to the Chicago stockyards annually. The number of hogs is set down at from 7,000,000 to 8,000,000 and there are from 3,000,000 to 4,000,000 sheep. Some of these animals are sold to farmers, to cattle breeders, or to exporters of live cattle destined to be slaughtered abroad. But the greater proportion, from two-thirds to three-quarters of these animals, is killed on the spot. Berlin may serve as a comparison with Chicago, for there we find probably the largest State and municipal abattoir in existence. All that relates to the transport of the cattle and so on is in the hands of the State, while the buildings for slaughtering belong to the Berlin municipality. The system of payment is, as usual, a fixed charge per head for the use of the accommodation and the control supplied by the authorities. The highest charge in proportion to their size and value is that made for hogs. This is natural because much more careful examination is necessary. The owner therefore has to pay 1.50 marks for every pig killed. But of this sum no less than .80 pfennigs go to the cost of examination, 25 pfennigs for the working expenses, and 55 pfennigs as the salary of the microscopist; so that the charge for the actual slaughtering is only 70 pfennigs. A higher price might be obtained in America than in Germany, yet even at the Berlin estimate we may reckon in American money 40 cents per hog and at the rate of 6,000,000 hogs this would make an income of $2,400,000 per annum, but there were actually 6,648,449 hogs killed here in 1902. For cattle at Berlin the charge is 1.90 marks per head, of which only 50 pfennigs are required for examination. In America this would equal in round figures half a dollar, or for 3,000,000 cattle, including calves, $1,500,000 per annum. There remain some 3,000,000 sheep at 30 cents each, or $900,000. Therefore the cattle, hogs, and sheep, even at the Berlin rate for slaughter-house fees, would at Chicago bring in at least $4,800,000 per annum. But a great amount of poultry is killed here and there is also a very large horse market, so that the present amount of business done might easily bring in more than $5,000,000 or £1,000,000 per annum to the Chicago municipality. With such an income it would be easy to defray the working expenses and to repay the loan made for building the public abattoirs; there would then remain an increasing revenue which the town might utilise for the reduction of taxation or for the carrying out of works of public utility. Such is the opportunity which the municipality of Chicago has missed.

Nor does the matter end here. It must be clearly understood that no one possessing technical knowledge of the question would buy meat from Chicago if it were possible to obtain it at about the same price and quality from an efficiently controlled municipal slaughter-house such as exists at Brussels, Berlin, Paris, and many other great railway and canal navigation centres. It will scarcely be believed, but it is nevertheless a fact, that at Chicago not only is there no municipal abattoir but there are no private abattoirs in the technical sense of the term. It is true that millions of animals are slaughtered annually, but they are not slaughtered in slaughter-houses. For many hours I wandered about the stockyards and I saw many animals killed but nowhere could I discover the smallest trace of a slaughter-house. The animals were killed not in abattoirs but in mills or factories—huge, hideous box-shaped buildings five and six storeys high. The pigs notably were killed on the second or third floor of these buildings. As for all the principles of sanitation laid down to govern the construction of abattoirs, these were ignored from the first to the last. Consequently the insecurity is so great that several nations of the more civilised parts of the world have thought it necessary to enact special laws against Chicago. The exportation of pork products from Chicago to Germany, Austria, France, and Denmark is prohibited unless accompanied by a certificate issued, not by any local authority, but by the Government of the United States itself. The entire American nation thus pledges its honour that no product that has not been carefully examined under the microscope shall be exported from Chicago to those countries. As for American citizens or for British citizens it does not matter. They may swallow trichinæ wholesale; no one seems to think it is worth while to attempt to protect them. Yet it was formerly shown that of the hogs taken to market 3 per cent. were infected with trichinæ. Fortunately some Governments, especially the German Government, have taken energetic measures to prevent the spread of trichinosis and therefore hog rearers and dealers are more careful. Greater attention is now bestowed on the rearing of pigs and consequently the prevalence of this serious disease is considerably reduced. The inspectors appointed by the central Government at Washington cut three different samples from each pig killed at Chicago which is to be exported to the countries mentioned. These samples are examined for trichinæ under the microscope. Instead of 3 per cent., as formerly, only 1½ per cent. of the animals examined at Chicago are found to be infected with this disease. But the pork products prepared for the American and the British markets are not so examined and this though it is known that on an average 1½ per cent. of the total are infected with trichinæ. Fortunately, this parasite is generally destroyed by cooking but there are some sausages made with raw pig's meat and it is difficult to understand why precautions judged necessary by so many continental nations should not be equally needed to protect the American public and the British public. Of course, if there were at Chicago an abattoir managed on similar lines to that at Berlin none of the existing hostile legislative and

[1] THE LANCET, July 14th, 1894, p. 101.
[2] THE LANCET, Dec. 17th, 1892, p. 1409.

protective measures now enforced against the produce of the Chicago stockyards would be necessary nor would they have been enacted.

Several years ago when in Servia, I was consulted by the authorities as to what could be done to improve the material resources of the country. The founders of both rival dynasties, the Karageorgewitch and the Obrenovitch houses, had been engaged in the rearing of pigs. Indeed, pigs and prunes are the principal products of the country, so I urged that instead of sending at great cost living pigs to the Hungarian markets a model slaughter-house should be constructed according to the latest principles of sanitary science. Close to Belgrade, either on the banks of the Save or of the Danube, there is an abundance of vacant space admirably suited for such a purpose. Here shambles made mainly with iron and glass, bathed in daylight and sunlight, with double ventilating roofs, could be constructed. Of course, there would be good laboratories for bacteriological research and microscopical examination. With such measures and precautions the products might attract many purchasers by reason of the security which enlightened scientific and State control would insure. Is it now too late for such arguments to be applied at Chicago?

As the stockyards of Chicago cover an area of some 500 acres no general view can be obtained but the accompanying illustration (reproduced from a photograph which I was able to take of a small portion of the stockyards) shows three things. First, that there is a large amount of vacant ground in their immediate neighbourhood; therefore a model abattoir could be built sufficiently close for the continued utilisation of such portion of the existing

FIG. 1.

Chicago. The stockyards. View showing the factory character of the buildings in which the slaughtering is done, the amount of vacant space at hand, and the smoke nuisance.

plant as is fit to be preserved. Secondly, the factory character of the buildings will be noted, though it will be difficult for anyone to believe who has not seen that it is in such buildings that the animals are actually slaughtered. Thirdly, one chimney, at least, forcibly illustrates with what recklessness and utter indifference to public welfare the atmosphere is befouled by the blackest of smoke.

The next illustration is reproduced from a photograph which was taken from an open and large space of waste ground in Forty-eighth Street. Here a portion of "Packing Town" may be seen—namely, the wooden cottage homes of the people who work in the stockyards at packing and preparing the meat to be sent to all parts of the world. In the background the smoke and escaping steam from the stockyards can again be noted. It will be seen how sparsely the ground is built upon and that, therefore, land must be comparatively cheap. Consequently there should be no insurmountable financial difficulty in securing a suitable and sufficiently extensive site for the erection of sanitary slaughter-houses such as exist in most civilised countries. In the construction of the cottages it will be observed that in spite of the abundance of land they are sometimes placed too close to each other. The cottages to the left of the picture have barely three feet of open space between them. This would not matter so much were it not for the fact that some of the cottages are so long or deep that windows have to be cut in the walls of the narrow passage between the dwellings. Such windows receive insufficient air, but little light, and no sunshine. This is one of the many instances showing with what

FIG. 2.

Chicago. "Packing Town," from Forty-eighth Street, showing the workers' cottages, the large amount of open space, and the stockyards smoke nuisance in the rear.

thoughtless disregard of human health interests cheap dwellings are sometimes erected. On the other hand, the vast amount of waste ground, the scattering of the dwellings, and the absence of overcrowded streets are some of the principal reasons why the insanitary condition of the stockyards has not produced as much injury to the people who work in them as otherwise might be expected.

Going to the more populated end of Forty-eighth Street—that is, near Ashland Avenue which is the main thoroughfare of the district—I was startled to find that men and horses were engaged in ploughing the street. It is true that they were not going to sow wheat in the middle of the thoroughfare but the fact that it was

FIG. 3.

Chicago. Ploughing in Forty-eighth Street.

possible to plough a street without interfering too much with the traffic indicated how slight that traffic must be and consequently how very little crowding there is in the neighbourhood. As it will certainly be maintained that the vital statistics do not demonstrate that any great harm is done by the stockyards, it is important to bear these facts in mind. It does seem as if the unwholesomeness of the stockyards is to a large extent counteracted by the healthy character of the workpeople's houses. In Berlin, Paris, and many other European towns there are reverse conditions—namely, proper, clean slaughter-houses with plenty of light and sunshine but the workers are compelled to live in crowded tenement houses built in the narrow streets of teeming cities. The accompanying illustration (Fig. 3) shows the enormous amount

of open space enjoyed even in the more populated end of Forty-eighth Street. The photograph was taken at the lunch hour. In the foreground the horses are resting by the side of the plough and it will be seen how they have ploughed up the earth in the middle of the street. To the right a curbstone stands up above ground to the height of more than one foot, a very convenient contrivance for tripping people up in the dark. The object of ploughing the middle part of the street was to loosen the earth so that it might more easily be lifted and thrown on the other side of this curbstone and thus the level of the side walk would be raised a little above that of the street. Of course, there is no pavement and, indeed, the whole of the district is more like a country settlement than a town. When the population increases, if great reforms are not accomplished at the same time, there will be serious consequences.

Finally, I took a photograph of a house in this same

FIG. 4.

Chicago. "Packing Town." Workers' dwelling where there have been many cases of tuberculosis.

neighbourhood where there has been an exceptional prevalence of tuberculosis (see Fig. 4). The front opens on to a very broad street so I photographed the back of the house where the conditions are not so good and yet it will be seen how large is the amount of open space. Indeed, no fault can be found topographically with this house. The workpeople engaged at the stockyards may consider themselves very fortunate to be able to live in what, so far as breathing space is concerned, is more like the country than a city boasting of nearly 2,000,000 inhabitants, but when they leave their homes to work within the stockyards then indeed they have good cause to complain.

(To be continued.)

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Fleet-Surgeon John Speare Lambert has been placed on the Retired List, with permission to assume the rank of Deputy Inspector-General of Hospitals and Fleets (dated Dec. 22nd, 1904) and Surgeon Arthur Heaword Prichard has been placed on the Retired List (dated Dec. 19th, 1904).

The following appointments are notified:—Surgeons: E. R. Grazebrook to the *Cambridge*, additional, for the *Theseus*, and F. J. McKenna to the *Hussar* on commissioning.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel (temporary Surgeon-General) A. Keogh, C.B., to be Colonel, vice W. Donovan, C.B., promoted (dated Dec. 2nd, 1904). Lieutenant-Colonel J. I. Routh to be Colonel, vice A. Keogh promoted (dated Dec. 3rd, 1904). Colonel A. H. Anthonisz is placed on retired pay (dated Dec. 22nd, 1904).

ARMY MEDICAL STAFF.

Colonel W. Donovan, C.B., from Royal Army Medical Corps, to be Surgeon-General, vice Sir W. Taylor, K.C.B., K.H.P. (dated Dec. 2nd, 1904). Colonel (temporary Surgeon-General) A. Keogh, C.B., from Royal Army Medical Corps, to be Surgeon-General, to complete establishment (dated Dec. 3rd, 1904).

ARMY MEDICAL SERVICE.

Surgeon-General A. Keogh, C.B., is appointed Director-General, vice Sir W. Taylor, K.C.B., K.H.P., retired (dated Jan. 1st, 1905).

ARMY MEDICAL RESERVE OF OFFICERS.

Captain H. W. Thomson, Glasgow Companies, Royal Army Medical Corps (Volunteers), to be Surgeon-Captain (dated Dec. 24th, 1904).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Gloucestershire: Surgeon-Lieutenant-Colonel D. S. Davies resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Jan. 4th, 1905). 2nd Sussex: Surgeon-Major H. Habgood to be Surgeon-Lieutenant-Colonel (dated Jan. 4th, 1905).

Rifle: The Cambridge University: Surgeon-Lieutenant H. B. Roderick to be Surgeon-Captain (dated Jan. 4th, 1905). 1st Bucks: Supernumerary Surgeon-Major (Brigade-Surgeon-Lieutenant-Colonel) W. H. Bull (Senior Medical Officer, Home Counties Volunteer Infantry Brigade) to be Surgeon-Lieutenant-Colonel and to remain seconded (dated Jan. 4th, 1905). 1st Sutherland (The Sutherland Highland): Surgeon-Lieutenant S. Elliot resigns his commission (dated Jan. 4th, 1905). 7th Middlesex (London Scottish): Surgeon-Lieutenant-Colonel J. Cantlie resigns his commission and is granted the honorary rank of Surgeon-Colonel with permission to wear the prescribed uniform (dated Jan. 4th, 1905).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The London Companies: Captain A. Granville is seconded whilst holding a civil appointment under the Egyptian Government (dated Nov. 28th, 1904); Surgeon-Captain E. A. Snape, from the 2nd Middlesex Royal Garrison Artillery (Volunteers) to be Captain (dated Jan. 4th, 1905). The Manchester Companies: Gordon William Fitzgerald to be Lieutenant (dated Jan. 4th, 1905).

INDIAN HONOURS.

Major Robert Bird, I.M.S., surgeon to the Viceroy and Governor-General of India, has been appointed a Companion of the Most Eminent Order of the Indian Empire.

MOUNTAINOUS TIBET.

We have already dwelt upon the very difficult geographical features of the country which was the scene of the late Lhasa expedition. The following will give some idea of these and of the altitudes traversed by the troops. The Karo-la has an elevation of 18,500 feet; the mean altitude is over 16,500 feet, the valleys being from 14,500 to over 17,000 feet, the peaks from 20,000 to over 24,000 feet, and the passes from about 16,500 to 19,000 feet.

THE WAR IN THE FAR EAST.

The first act at any rate in the tragic drama that has been so long going on in the Far East has come to an end and the curtain has fallen with the capitulation of Port Arthur. Whether it is to be continued or not will, we suppose, materially depend upon the internal state of affairs in Russia. The news of the surrender of the beleaguered fortress has been received by all civilised nations with an intense feeling of relief. General Stoessel, whose heroic defence all must admire and respect, has had the moral courage to accept the inevitable and to realise that further resistance would only lead to increased suffering and a perfectly futile sacrifice of life on the part of his devoted garrison. This much may be said for the Japanese, they regarded that the seizure of the fortress by the Russians in 1897 and its continued occupation by them since that time meant a matter of life and death to their nation. They have now retaken possession of Port Arthur at an enormous sacrifice of life and treasure and with an exhibition of desperate courage and pertinacity of purpose on their part which have probably never been exceeded in the history of war. We have no intention to compare the defensive difficulties of Ladysmith and Mafeking in the late Boer campaign with those of Port Arthur but we may gratefully recall the fact that the defence of the former, happily for the British, proved successful. It is stated that there were 15,000 wounded men in the already overcrowded hospitals with only 5000 convalescents and able-bodied men available for fighting in Port

Arthur at the time of its surrender. The absorbing news regarding the capitulation of Port Arthur has naturally engrossed everybody's attention to the exclusion of events occurring elsewhere. There is, however, little or no news concerning the belligerent armies. They still remain inactive but confronting one another on the Shaho. The Russian field kitchens used by the troops are very good and have enabled them to partake of a warm meal at all sorts of times and places. The ambulatory kitchens supply them with hot soup and tea at night or during an engagement. The reports regarding the health of the troops are somewhat contradictory and it is very difficult to ascertain their actual condition in this respect.

A message from Moscow to the *Novoe Vremya* says that as 12 per cent. of the wounded from the Far East return with open bullet wounds the city council has decided to acquire a Roentgen-ray laboratory for the purpose of searching the wounds of those brought into Moscow.

A telegram has been received in Moscow from the city Red Cross representative in the Far East that out of the 120 packets sent there in July and August over 100 were lost, including a quantity of Roentgen-ray apparatus so necessary for use in treating the wounded.

Major Louis L. Seaman, who is a major and surgeon in the United States Volunteers, has just published a book on the Japanese Army in Manchuria. Major Seaman served in Cuba during the Spanish-American war, in the Philippines, and with the allies in China at the time of the Boxer rising, and is consequently entitled from his experience to speak with authority. Major Seaman is unstinting in his praise of the Japanese Army Medical Service, both from the sanitarian standpoint and from that of practical and scientific medicine and surgery. The object of the Japanese Medical Service has been to prevent rather than to cure disease, and how successful the effort has been is shown in the fact that fighting in a notoriously unhealthy country the Japanese army has suffered but little from the effects of disease. Referring to the large base hospitals at Hiroshima and Sasebo, Major Seaman says: "Up to August 1st 9662 cases had been received at the hospital (Hiroshima), of which 6636 were cases of the wounded; of the entire number up to that time only 34 had died." The results at the naval hospital at Sasebo were equally gratifying. Major Seaman gives a long account of the medical officer in the field and institutes comparisons between the Japanese army medical department and those of the most highly civilised nations, which are by no means flattering to the latter. It would appear from a perusal of Major Seaman's book that the Japanese Army Medical Service has not only successfully imitated the best European methods but has even improved upon them.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 7617 births and 6567 deaths were registered during the week ending Dec. 31st, 1904. The annual rate of mortality in these towns, which had been 18·5, 19·2, and 19·4 per 1000 in the three preceding weeks, further rose to 22·4 per 1000 last week. In London the death-rate was 21·0 per 1000, while it averaged 23·1 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 9·6 in York, 11·7 in King's Norton, 11·8 in Willesden, 12·0 in East Ham, 12·2 in Walthamstow, 12·8 in Leicester, and 13·1 in Handsworth (Staffs.); the highest rates were 28·6 in Huddersfield, 29·5 in Preston, 30·0 in Sunderland, 32·4 in Middlesbrough, 33·0 in Stockton-on-Tees, 33·3 in Oldham, 35·2 in Manchester, and 36·7 in Hanley. The 6567 deaths in these towns last week included 475 which were referred to the principal infectious diseases, against 438, 421, and 399 in the three preceding weeks; of these 475 deaths, 153 resulted from measles, 105 from whooping-cough, 80 from diphtheria, 54 from diarrhœa, 50 from scarlet fever, 31 from "fever" (principally enteric), and three from small-pox. No death from any of these diseases was registered last week in Croydon, Willesden, Hornsey, Hastings, Southampton, Reading, Handsworth (Staffs.), Smethwick, Wallasey, Wallington, or Rotherham; while they caused the highest death-rates in Great Yarmouth, Bristol, Hanley, Burton-on-Trent, Grimsby, Nottingham, Liverpool, St. Helens, Oldham, Blackburn, Stockton-on-Tees, and South Shields. The greatest proportional mortality from measles occurred in Devonport, Bristol, Leicester, Grimsby, Nottingham, Liverpool, St. Helens, Stockton-on-Tees, Gateshead, Tynemouth, and Merthyr Tydfil; from scarlet fever in Northampton, Coventry, and Blackburn; from diphtheria in East Ham; and from whooping-cough in Great Yarmouth, Bristol, Hanley, Derby, St. Helens, Oldham, Middlesbrough, and South Shields. The mortality from "fever" and from diarrhœa showed no marked excess in any of the large towns. Of the three fatal cases of small-pox registered in these towns last week one belonged to Bolton, one to Preston, and one to Bradford. The number of small-pox cases under treatment in the Metropolitan Asylums hospitals, which had been four, six, and 14 at the end of the three preceding weeks, had further risen to 17 at the end of last week; five new cases were admitted during the week, against one, two, and nine in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of last week was 2386, against 2490, 2403, and 2393 at the end of the three preceding weeks; 201 new cases were admitted during the week, against 263, 242, and 242 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 448, 487, and 416 in the three preceding weeks, rose again last week to 531, and were 115 above the number in the corresponding period of last year. The causes of 123, or 1·9 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Leicester, Nottingham, Bolton, Bradford, Leeds, and in 29 other smaller towns; the largest proportions of uncertified deaths were registered in Burton-on-Trent, Birmingham, King's Norton, Liverpool, Bootle, Warrington, Manchester, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 19·7, 22·6, and 21·2 per 1000 in the three preceding weeks, rose again to 21·6 per 1000 during the week ending Dec. 31st, but was 0·8 per 1000 below the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 15·3 in Dundee and 16·2 in Leith, to 25·4 in Aberdeen and 27·7 in Perth. The 715 deaths in these towns last week included 40 which were referred to whooping-cough, 20 to measles, 12 to diarrhœa, two to scarlet fever, two to diphtheria, and two to "fever." In all, 78 deaths resulted from these principal infectious diseases last week, against 68, 80, and 90 in the three preceding weeks. These 78 deaths were equal to an annual rate of 2·4 per 1000, which was 0·8 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 36, 32, and 31 in the three preceding weeks, rose again last week to 40, of which 29 occurred in Glasgow, four in Edinburgh, three in Perth, and two in Leith. The deaths from measles, which had been ten, 17, and 19 in the three preceding weeks, further increased to 20 last week, and included 15 in Aberdeen and four in Glasgow. The fatal cases of diarrhœa, which had been 15, 16, and 25 in the three preceding weeks, declined again last week to 12, of which six were registered in Glasgow, three in Aberdeen, and two in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 204, 206, and 174 in the three preceding weeks, rose again last week to 184, and were seven in excess of the number in the corresponding period of the preceding year. The causes of 29, or more than 4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 25·2, 25·3, and 24·5 per 1000 in the three preceding weeks, rose again to 25·0 per 1000 during the week ending Dec. 31st. During the 13 weeks ending on that date the death-rate has averaged 23·1 per 1000, the rates during the same period being 17·0 in London and 16·2 in Edinburgh. The 182 deaths of persons belonging to Dublin registered during the week under notice were four in excess of the number in the

preceding week, and included 26 which were referred to the principal infectious diseases, against 14, 10, and 12 in the three preceding weeks; of these, 16 resulted from measles, six from diarrhœa, two from whooping-cough, one from scarlet fever, and one from "fever," but not any from small-pox or diphtheria. These 26 deaths were equal to an annual rate of 3·6 per 1000, the death-rates last week from the principal infectious diseases being 1·4 in London and 1·3 in Edinburgh. The fatal cases of measles, which had been six and ten in the two preceding weeks, increased last week to 16. The deaths from diarrhœa, which had been one, three, and one in the three preceding weeks, rose again to six last week. The 182 deaths in Dublin last week included 40 of children under one year of age and 48 of persons aged 60 years and upwards; the deaths of infants slightly exceeded the number in the preceding week, while those of elderly persons showed a decline. Three inquest cases and three deaths from violence were registered; and 74, or more than a two-fifths, of the deaths occurred in public institutions. The causes of eight, or more than 4 per cent., of the deaths registered in Dublin last week were not certified.

Correspondence.

"Audi alteram partem."

HOW THE GENERAL MEDICAL COUNCIL SUPPORTS ITS VISITOR AND INSPECTOR.

To the Editors of THE LANCET.

SIRS,—Having completed my work as inspector of the General Medical Council, and after the fierce attack made on Nov. 28th by its (past) President upon the accuracy of the report of the visitor and inspector of the Council upon the final examination of the University of Edinburgh, and my inability to get Sir William Turner to give both sides of the question which has been raised, I must ask you to publi-h the following inclosures.

I am, Sirs, yours faithfully,

Grosvenor-street, W., Dec. 26th, 1904. THOMAS BRYANT.

27, Grosvenor-street, London, W., Dec. 6th, 1904.

DEAR SIR WILLIAM,—I have just read and re-read the speech you made from the chair at the stormy meeting of the General Medical Council of Nov. 28th on the proposal of the chairman of the Examination Committee for the adoption of the report of the committee on the final examination of the University of Edinburgh, and I must add that I read your speech with sorrow and astonishment, for it was quite clear that you had on the occasion allowed your anger to obscure your judgment and consequently to make statements such as the facts in the report I signed with Sir G. H. Philipson by no means justify.

For instance, you quoted the following passage from the inspector's report,[1] and then said "you were going to *question the truth of the paragraph*," and you did this without drawing any attention of the members of the Council to the reasons given in the visitor and inspector's report for writing that paragraph, and which are to be read in the two paragraphs preceding the one you had quoted on page 13.[2]

Might I ask, are not the above reasons for such an opinion as is contained in the paragraph you quoted worthy of consideration? and was it quite fair (to use a mild expression) for the President of the Council to put only one side of a question before its members on such an important matter as was then under consideration?

You then made some rather wild remarks about a clinical examination at the bedside, as you understand it, in Edinburgh and drew some inferences which are your own, whilst my remarks, which you quoted (p. 14) and made fun over, had special reference to a more humane and better method such as is followed by the professor of surgery of Edinburgh University and successfully practised by him and others, the adoption of which would enable your professor of clinical surgery to give up using sick patients in a hospital ward for purposes of examination in surgical anatomy and surgical operations in the presence of other sick patients, as well as of their male and female visitors, and more particularly when these same surgical patients had been previously for the better part of two hours in the hands of the candidates for examination in taking a report of their cases.

Am I to understand that you approve of the practice my colleague and I saw carried out in the way described and which we say is neither humane nor decent? for the faculty of your University, I was pleased to read, admits that the criticism of the visitor and inspector with respect to patients' friends in the wards is reasonable, page 33, (2) and that other of our suggestions will have the careful consideration of the faculty. At the same time the faculty, in page 35 of the report, condemn the visitor and inspector for the opinion they gave and which is contained in the sentence you have quoted. When that sentence was penned, as I have shown to have been the result of the extraordinary arrangements which have been described and which must have spoiled any clinical surgical examination, however otherwise excellent.

The questions the examiners gave may have been good, but in the practical examination they were not applied and were not tested; the examination, in fact, was all talk, nothing practical.

I could say something about the report of the Examination Committee, for it illustrates the "doubtful" condition of the chairman's mind. He saw only in the report what he wanted to see and nothing else. The report, moreover, of the Examination Committee is not accurate.[3]

I write this letter to ask what you mean to do. You admit that "to three-fourths of the examination the visitor and inspector could not have spoken in much higher terms," and this pleasant part of the report you accept as true, whereas you deny the truth of the criticisms of the surgical fourth which are as true as the other three-fourths.

If you have any thought of making the matter clear, so much the better. At present both you and the Examination Committee, by singular methods, obscure the truth which must be made clear.—Believe me, yours faithfully,

Sir W. Turner, K.C.B. THOMAS BRYANT.

Receiving only an evasive answer to this letter I sent the following:—

Grosvenor-street, W., Dec. 20th, 1904.

DEAR SIR WILLIAM,—I have just returned from Oxford, having finished the inspection of the final examination in medicine of the University and find your answer to my letter of Dec. 6th.

In your letter you have evaded the questions I put to you

[1] "During the three afternoons we (the inspector and visitor) devoted our attention to this part of the surgical clinical examination, not a patient was placed in the position of one who had to undergo the operation suggested. No mention was made of assistants or the use of instruments which might be required. No attempt was made practically to get out of any candidate any precise knowledge of the relation of an artery or nerve beyond what book knowledge would have given him; indeed, the examination was so unsatisfactory that we were enabled to realise the truth of the adverse criticisms we have heard of this method of examination in a way which we never before believed to have been possible."

[2] "Immediately on the conclusion of Part A of this clinical examination the candidate was required to carry out Part B and under another examiner to indicate upon the patient whose case he had reported, and upon whose case he had been examined, the lines of incision for two operations which had been previously indicated; upon the same patient he had, moreover, to be examined on surgical anatomy and surgical procedures, and it must be added that all this serious work was carried out in a ward to *which the patients' friends and visitors, male and female, were freely admitted.* It need hardly be added that, under these circumstances, exposure of any part of the patient's body which was so essential for examination purposes was inadequate or impossible and that the examination suffered seriously in consequence."

[3] Page 42. The chairman of the Examination Committee finds fault with the visitor and inspector for not having expressed an opinion as to the standard of the examination in jurisprudence and public health when the slightest care would have informed him that the examination of only two candidates had been inspected. He, doubtless, would have wished that such a blunder had been committed to give him some reasonable excuse for fault finding. In the same page he states that no opinion is expressed by the visitor and inspector as to the standard of the oral examination in general surgery (p. 13). Had the chairman read to the bottom of page 19 he would have read that they were (visitor and inspector) much pleased with both the oral and practical surgical examination.

Page 44, the last 17 lines. After a quotation, the Examination Committee state that the medical faculty of the University do not admit the accuracy of the statements of the visitor and inspector and *from notes furnished by the examiners* the faculty is satisfied that the examination in surgical anatomy was not only appropriate but very searching. Happy faculty! who are satisfied with conditions they did not see and with an examination they did not hear, when the visitor and inspector *saw* what they have described on *three consecutive afternoons* and heard the examinations upon which they have given their opinion and to which they adhere.

and I therefore for a second time repeat them in a categorical form and trust that you will consider them worthy of your attention.

Question 1.—Was it quite fair (to use a mild expression) for the President of the General Medical Council to put only one side of a question before its members?

Answer .....

Question 2.—Do you deny the truth of the following paragraph? Page 13 of report.

Immediately on the conclusion of Part A (about which no remarks are called for) "the candidate was required to carry out Part B, and under another examiner to indicate upon the *patient whose case he had reported*, and upon whose case he had been examined, the lines of incision for two operations which had been previously indicated; upon the same patient he (the candidate) had, moreover, to be examined on surgical anatomy and surgical procedures, and it must be added that all this serious work was carried out in a ward *to which the patients' friends and visitors, male and female, were freely admitted.*

Answer .....

Question 3.—Do you consider that such arrangements are from any point of view satisfactory?

Answer .....

Question 4.—Do you think it possible under such arrangements as have been described that any examination on surgical anatomy and surgical procedures could be otherwise than a failure?

Answer .....

Believe me, Sir William, yours faithfully,

Sir W. Turner, K.C.B. T. BRYANT.

To which on Dec. 23rd I received the inclosed:—

University of Edinburgh, Dec. 23rd, 1904.

DEAR MR. BRYANT,—I am in receipt of your letter of Dec. 20th, in which you ask me to reply to a series of questions put by you in a categorical form. In reply, I would state that the report on the final examination of this University is a public document open to criticism. It has been criticised by the Examination Committee of the Medical Council, by the Faculty of Medicine of this University, and by myself as the representative of the University on the Council. Those interested in the matter have the means therefore of forming an opinion on the points under discussion.

With all respect to yourself personally I decline to be further catechised on the subject.

I remain, very truly yours,

Thos. Bryant, Esq. WM. TURNER.

HÆMOCONIA.

To the Editors of THE LANCET.

SIRS,—I read with much interest Dr. Andrew Love's article on Hæmoconia in THE LANCET of Dec. 24th, 1904, p. 1781. I have been investigating those bodies for a considerable time and my observations regarding their classification correspond with his. I have found them in every blood I have examined with the exception of two cases. The blood in these cases was abnormal in this respect that coagulation of the drop appeared to take place as soon as the puncture was made. I had a difficulty in spreading the films and they showed on examination large solid-looking plates of fibrinous material. Hæmoconia were entirely absent in both cases, although I searched for them for hours. The group No. 2 of Dr. Love's classification I have found freely motile in a film closed with vaseline after three days. I have found group No. 2 in a urine I examined and in this patient's blood these bodies were present in great abundance; the whole plasma appeared scintillating with them. As yet I have come to no conclusion as to their prognostic significance. I have found them as freely in persons who are in perfect health as in those who suffer from disease. In some, however, there are few to be found, while in others they are numerous. I examined my own blood and found them very numerous and so far as I know was suffering from no disease at the time. I have also failed to stain them though I have tried every method available. At present I should not care to advance any theories regarding their function but I think they are well worthy of further investigation.

I am, Sirs, yours faithfully,

Edinburgh, Dec. 27th, 1904. FREDERICK PORTER, M.B. Edin.

INSTRUCTION OF THE LAITY IN THE EARLY SIGNS OF CANCER.

To the Editors of THE LANCET.

SIRS,—Mr. Skene Keith in his letter to THE LANCET of Dec. 24th, 1904, p. 1811, in one sentence objects to the public being instructed in the early signs of cancer on the ground that an omniscient first-aid graduate might undertake to differentiate between a malignant and an innocent growth, and in the next sentence says, "What the public require to be taught is to seek advice early." How the laity is to be "taught to seek advice early" without being educated in the early signs of cancer Mr. Keith has failed to explain and has at the same time entirely overlooked the fact that my letter from beginning to end advocates early appeal, not to the first-aid graduate but to the medical man as the judge who is to decide whether a growth is sufficiently suspicious to need removal. Quacks who flourish on cases of cancer, real or imaginary, will always exist; the number of their victims can only be diminished by educating the public in the signs and treatment by operation of cancer in its early stages.

The suggestion that many medical men need instruction in the early signs of cancer, true as I know it to be, is beside the mark, for the simple reason that however well informed the medical man may be he cannot recognise a case of cancer in its early stage unless the patient comes to be examined, and the patient who usually regards pain as the distinctive feature of cancer does not consult a medical man until driven to do so by the onset of pain, which frequently means that the growth has involved surrounding structures and is totally beyond cure or is curable only by a very severe and mutilating operation.

Mr. Keith wishes to know whether prevention includes the removal of every growth as soon as found. To this the answer is, Certainly not. A growth which has no suspicion of malignancy, is not enlarging, is not ulcerated, and is producing no symptoms should, unless its removal is desirable for æsthetic reasons, be left severely alone. But any growth which has any suspicious sign of malignancy, such as increase in size, persistent ulceration, or pain, should be removed. Removal of these small defined growths is easy, the risk of operation infinitesimal, and the chances of recurrence small. But when the growth has increased in size and invaded adjacent structures, with, perhaps, the formation of secondary deposits, the operation for its removal becomes correspondingly difficult and the chances of freedom from recurrence correspondingly diminished. Whether the earliest stage of a suspicious growth is precancerous and its removal by operation preventive rather than curative is a point of theoretical rather than practical interest.

The causes of cancer being still, in spite of alleged discoveries of cancer germs, absolutely unknown there is no immediate probability of our being able to prevent the formation of growths which, whatever their primary characteristic, ultimately become malignant. What we can and ought to do, is to teach the laity to have removed at once every suspicious growth while its removal is easy and the risk of the operation practically *nil*, and in this way give the growth no chance of demonstrating its innocency or malignancy. If Mr. Keith will work on these lines he will find that he can afford to disregard "the cures in the daily papers" and will have "a really practical method of prevention," not of the formation of tumours but of the development of these tumours into growths which ultimately kill patients.

I am, Sirs, yours faithfully,

Plymouth, Jan. 1st, 1905. C. HAMILTON WHITEFORD.

OPERATIVE TREATMENT OF RESULTS OF CONSTIPATION.

To the Editors of THE LANCET.

SIRS,—Dr. A. G. Barrs in THE LANCET of Dec. 31st, 1904, p. 1888, asks Mr. W. A. Lane for an account of the ante-mortem and post-mortem observations upon which his description of the changes taking place in the intestine and its peritoneal coat is founded. As Mr. Lane's house surgeon I have had the opportunity during the past three months of seeing him operate on six cases of chronic constipation. In every instance the small intestine was dilated and flabby; in four I could

distinctly see bands running upwards and outwards from a dilated colon; while in the other two I had not personally the opportunity of seeing or feeling the cæcum. On consulting my predecessors during the past year I find that they can recall 16 cases in which they saw similar adhesions about a dilated cæcum. I believe that very few post-mortem demonstrators make a thorough examination of the intestines and peritoneum *in situ*, so that it is not surprising that the effects of chronic constipation observed at these operations have not previously been described by pathologists.

I am, Sirs, yours faithfully,

Guy's Hospital, Dec. 31st, 1904. J. H. CLATWORTHY.

CANCER GENESIS.

To the Editors of THE LANCET.

SIRS,—Referring to the letter upon this subject in your issue of Dec. 3rd, 1904 (p. 1613), the controversy was not of my seeking and at your request in my reply brevity will be aimed at. No attempt will be made to follow your correspondent in his remarks upon the University of Edinburgh or in his personal attack upon myself. He mentions that he sent me a copy of his book in July, 1902. This at once recalled the book and all about it to my memory. I read it upon its arrival and I knew where it stood in my bookshelves but I had failed to associate the name of your correspondent with the authorship of that book.

Perhaps by a few references to "The Principles" I may be able to demonstrate more clearly the nature of the divergences between us. On p. 66 the author writes: "But in the higher organisms certain cells never attain a high degree of development: they remain in a lowly organised condition, and serve, according as they are more or less unspecialised, either as germs for reproducing the entire individual, or for forming and maintaining the various tissues and organs. Such cells are found in all growing parts; they are the only real cancer and tumour germs." In the first place, if this be true, it would follow that a tumour could not be a twin homologous or identical with the individual containing it, but a new generation younger than the individual harbouring it and this is in direct contradiction with Mr. W. Roger Williams's main thesis. Secondly, while all reproductive or germ cells undoubtedly possess the potentiality of ultimately giving rise to new individuals as incidental products of their activities, it is only the unconscious memories of a certain few of them which lead to this attempt, while they inhabit as the home prepared for them the body of a higher animal, and the "germs for forming, &c." various tissues and organs do not exhibit this faculty in vertebrate animals and in all probability do not possess it. As little can it be maintained that "there is no fundamental distinction between the various modes of reproduction—sexual and asexual, &c." The whole of modern embryological and botanical opinion will be found to be in opposition to this conclusion, for it is not in accord with the facts of nature. Again, speaking of the relations of identical twins to double monsters, the author writes (p. 123): "Thus when the division of the undifferentiated embryo into two equal parts is complete, and each of these develops into a new being, homologous twins are the result; and this is the only instance of reproduction by gemmation in the highest animals." If identical twins arise in this way how do identical triplets come to pass? Does the "germ" here divide into three equal parts? If so, how does it contrive to do this and how do the conditions witnessed in certain armadillos, such as praopus hybridus, come about? Here, according to von Jhering, there are from four to 12 embryos produced from one egg, all of the like sex, all homologous or identical, and some of them more or less rudimentary. These are facts, not fables, for the discovery has been confirmed by Koelliker, and Sir William Turner has informed me that he himself has seen and worked upon them but that he has never published any of his finds. Is Mr. Williams or anyone else able to conceive that a "germ"—i.e., a blastoderm—can so "split" as to form 12 identical embryos? Why, moreover, are they all in the one trophoblast or chorion—a part of "the embryo" according to orthodox embryology—if this "splitting" have happened? If this be the explanation of all the above phenomena in the higher animals why can it not be applied to the lower ones and to plants? Do the medusæ of a hydroid polype arise by a "splitting" of a "germ" which in favourable circumstances might have given rise to one big medusa? Are the prothalli—the sexual generation—of a fern produced by splitting or does not each prothallus arise by the independent development of a single cell, here called a spore? Then there are the two kinds of identical twins—the rare "looking-glass-image" ones and the commoner sort "from the same mould." To which of the two does the explanation of the "splitting" apply and what cause lies at the bottom of the production of the other variety? "Splitting" will not account for both. The "looking-glass-image" twins are the greatest wonder in animate nature and the only possible scientific explanation of them is that they have arisen from the two products—right and left—of the division of a single cell; indeed, of an immediate forerunner of two primary germ cells. Elsewhere I have shown, and in the last two years no one has attacked the conclusion, that the primary germ cells of metazoan development (the formation of which demonstrably precedes the unfolding of an embryo and from one and only one of which "the embryo" takes its birth) are the equivalents of the spore mother cells of plants and that like the products of these, the spores, each primary germ cell has the potentiality of unfolding as an embryo. If two develop at the same time identical twins or double monsters result; if three, or eight, or 12, then the sequel is three, eight, or 12 identical embryos. Possibly the finds of so-called "experimental embryology" will be cited. This I define as "experimental pathology," for the results are either pathological or border on this science and in making his "Eingriff" the observer never knows, or can know, what he has really done.

The final examples to be cited from the "Principles" are the classification of the tumours based upon the now extinct "parablast" theory of His and the failure on the author's part to show what a malignant tumour really is, why it is malignant, and the passage to these from the teratomata. On the latter score nothing more need be said. Regarding the former, the "parablast" theory of His has long disappeared from embryology and even Professor His himself admitted its erroneous nature some few years before he died. Your correspondent is not the first medical man to make the mistake of seeing in my conclusions only another version of those of Weismann. If it be, indeed, Weismannism to deny most of the conclusions he has advanced in his "Vortraege," then, undoubtedly, I must be a very ardent upholder of Weismann's views. There are some slight differences. For example, Weismann maintains the "all-sufficiency" of natural selection, direct development, recapitulation in development, somatic origin of germ cells, a doctrine of heredity based on biophores, ids, idants, &c., germinal selection, panmixia, &c., *and all these things I deny, while with Weismann Mr. Williams advocates the first four.*

Whether my conclusions be "degenerate" or not they were at least founded on solid facts of observation, and they were not drawn without that "patiently worked-out story of the morphological continuity of the germplasm" (i.e., the germ cells) which Professor W. Osler, in the finest compliment my work has ever received, describes as "one of the fairy tales of science."[1] The facts concerning the wide and impassable gulf between somatic cells and germ cells are contained in my various memoirs: in Mr. Williams's book there is nothing of any scientific import regarding the origin and history of the germ cells. In the earlier part of his last letter to you he admits this but only to contradict it in the later portion. The doctrine of a somatic origin of germ cells was enunciated by Waldeyer in 1870. From then until 1900 on his observations alone it really rested. In 1902, after some of my work had appeared, he abandoned this view entirely and wrote: "The consequences of this doctrine of the continuity of germ cells are almost incalculable for every branch of biology." So that now the position of affairs is this, that there are no trustworthy observations whatever proving a somatic origin of germ cells in the higher animals. Moreover, in consequence of my finds such a somatic origin cannot be demonstrated, unless it also be proven that the germ cells were not in existence at earlier periods than those at which they were supposed to have arisen from somatic cells. It is not science to "believe" in a somatic origin when the main observations supposed to support this have been retracted, when the chief observations extant are opposed to it, and when there are no observations worthy the name upholding it. None the less,

[1] W. Osler: Science and Immortality, London, 1904, p. 53.

it may be many years before the myth completely disappears. Until then Professor Waldeyer will have repudiated his results in vain, for it will always be stated that he "proved" a somatic origin!

In his letters, as in his book, your correspondent provides excellent texts. Of course, "a single scale from the leaf or stem of a plant suffices for the reproduction of the whole organism." But the little finger of a man's hand or a bit of his skin has not this potency and there is no comparison possible between the asexual generation of plants, the sporophyte or flowering plant, and the sexual generation of animals, "the embryo" or individual. The conditions are, however, similar in the asexual generations of the two. Just as a single scale of a flowering plant may produce the whole individual plant, so also a small bit, even a single cell, of the trophoblast may on occasion give rise to ever more and more trophoblast, and the like is true of a malignant neoplasm. In all these instances we may witness unlimited powers of growth. This is why, for example, many of our choicest and commonest flowering plants owe their origin to a single individual plant which cannot with certainty be again produced from seed. This is why the investigators of the Imperial Cancer Research Fund were able from one fragment of a mouse tumour to "grow" ever so many pounds of cancer, transplanting other little bits to new ground. This is also one reason why cancer and sarcoma cells are never embryonic or somatic.

In my first article upon cancer in THE LANCET[2] there is in a footnote a rather long reference to the experimental researches of Driesch, E. B. Wilson, and others, who have followed in the footsteps of Roux. Is your correspondent aware that more recent investigators have considerably modified some of Roux's earlier results? Among his numerous observations Professor Roux has never recorded any work upon the origin and history of the germ cells of vertebrates. That he was the first to carry out certain experiments upon eggs in cleavage has no connexion with the question of the morphological continuity of germ cells or with that of the course of the life-cycle. In his former letter your correspondent had words of praise for Herbert Spencer; in his present one he strongly condemns him along with Weismann and myself. The association of my name, even in a damnatory sense, with the honoured ones of Weismann and Spencer, two good and faithful servants of mankind, cannot be other than complimentary, and it is herewith accepted as such a compliment. The future alone will decide the strength and stability of my "craft." I venture to believe that it may perchance weather all storms, for I know only too well what amount of hard, often midnight, work, unrequited by all else except results, it and its small cargo have cost.

I am, Sirs, yours faithfully,

Dec. 23rd, 1904. J. BEARD.

*** Dr. Beard's lecture, which originated this discussion, appeared in our columns on Oct. 29th, 1904, p. 1200. We have given now as much space to the controversy as we can afford.—ED. L.

HOSPITAL "ISOLATION."

To the Editors of THE LANCET.

SIRS,—In your issue of Dec. 17th, 1904, p. 1737, you make the following quotation from a communication received from Dr. F. Lucas Benham of Exeter, South Australia. "In THE LANCET of June 13th, 1896, you will find a letter from me on 'Isolation and the Public Health Act,' in which I think I anticipated even Mr. Marriott in contending that the necessity for public hospitals for infectious diseases was far from being proved. ..... In your issue of the following week (June 20th, 1896) Mr. Berry of Wigan wrote a letter in my support and not long after Mr. Marriott of Nottingham also entered the field on the same side." From this it would appear that I have usurped without the least acknowledgment the position of another. It happens, however, that I was in active opposition to the "isolation" craze 20 (or more) years ago and that many years before the appearance of Dr. Benham's letter (which it was my misfortune not to see) I was writing voluminously on the "isolation" question. Unfortunately, I have not any of these early communications in my possession but many of them were preserved by my distinguished friend Dr. C. Bell Taylor and are still available. It must be 25 years since the "Liverpool Committee" paid me a visit and took down my evidence *in re* the working of the local Notification Acts, which evidence was published verbatim in a report which is still extant.

To those who remember the days when the aggregation of *all* sick was regarded as a mistake to be remedied by the building of cottage hospitals the advancement of so self-evident a proposition as that the aggregation of the infective sick in large permanent hospitals must be bad will not appear to justify any considerable claim to honour and glory. Let us keep in mind the fact that nobody has ever yet explained the *raison d'être* of the aggregation hospital. The earliest experiment injured or killed everybody concerned with it, which made Sir Thomas Watson exclaim that but for a certain fact, now known to have been a fiction, these institutions which "concentrate the poison" were little else than a public danger. Later down the stream of time a chief inspector of the Local Government Board, Dr. Thorne, after having sung the praises of the "isolation" hospital to the Royal Commissioners on vaccination, was telling these Commissioners that he had made a great mistake and that the establishment of isolation hospitals at Leicester and Warrington had been accompanied by a marked increase in the scarlet fever attack rate. Since then sanitarians have been urging the municipalities all over the kingdom to build these hospitals without once telling them the reason why, and nobody knows or ever knew the reason why. The method of procedure was brilliantly illustrated recently at Lincoln. A few years ago this city was visited by an epidemic of—something. Dr. L. W. Darra Mair, a gentleman who always approaches these investigations in a purely scientific spirit, was sent down from the Local Government Board to hold an inquiry. The inspector soon discovered that whatever it was he had to deal with it was not an epidemic of scarlet fever and that the trouble was not infectious. What happened? Lincoln forthwith broke out into an "isolation" hospital and only the other day his Grace the Bishop, surrounded by his *entourage*, was pouring out a libation to the gods because at last they could send the sick citizens to a place where if they had not got scarlet fever already they very soon would get it—and something else besides—and from which they would be able to return when convalescent to sow fever—and something else besides—broadcast in the interests of public health and as an object-lesson in preventive medicine. In conclusion, Sirs, I congratulate Dr. Benham on the fact that he contented himself with a letter in THE LANCET. Had he carried the thing further he might by this time have been the *mauvais sujet* of the public health profession. Instead of the peaceful life he is now living he would, having transgressed the sacred canons of that profession, have discovered that the way of transgressors is hard and that any stick is good enough to beat a medical reformer with.

I am, Sirs, yours faithfully,

Nottingham, Dec. 24th, 1904. EDWD. DEAN MARRIOTT.

THE EVOLUTION OF MAN'S DIET.

To the Editors of THE LANCET.

SIRS,—I am not sure that Dr. Harry Campbell's general statements with regard to the digestion of cellulose have materially altered my views, but I venture to think that he has raised some points which would tend to support my position. Dr. Campbell brings forward the fact that a certain amount of chemical solution of cellulose takes place both in anthropoids and in man, but does not show that anthropoids are any more able to digest it efficiently than man by the agencies referred to. Cellulose "is remarkable for its great resistance to the most varied chemical reagents" and the digestion referred to is practically negligible, for the chief importance of cellulose in the diet lies in its inert and mechanical properties. Then, again, he suggests that the bitter and acrid taste of the food of anthropoids renders it quite unfit for human consumption. May we not suggest that these acrid and bitter tastes are the natural excitants of the salivary and other glands which have to do with the maceration and preparation of the cellulose? Moreover, if we at times were driven by hunger to eat such bitter foods might we not acquire the taste for them? Vegetable foods, especially fruits, very generally associate cellulose, sugars, acids,

[2] THE LANCET, June 21st, 1902, p. 1758.

and acrid principles and it is scarcely right to consider the effects of any one of them when dissociated from the others. They naturally supplement each other. Thus while the cellulose on account of its physical nature is arrested in the mouth and disintegrated by the teeth the acids and acrid principles stimulate the flow of saliva and help to loosen the cellulose framework. Further, the acrid taste often remains in the mouth and continues to stimulate the flow of saliva even after the food has been swallowed. Then, again, the sugars stimulate the secretion of saliva, which further helps to macerate the cellulose. The mucous glands are likewise stimulated, and so the cellulose, and even any ligneous shreds which may accompany it, are coated with mucus and rendered fit for passage along the alimentary canal. Moreover, this copious secretion of saliva helps the more thoroughly to convert the starch and sugars, and the prolongation of the stage of alkaline digestion in the stomach has a certain importance in further disintegrating the cellulose.

It is not only on account of the effect on the cellulose that I would refer to the collateral benefits of bitter and acrid tastes. I would refer to them because the orthodox habit of giving young children almost nothing but soft, bland, generally alkaline food has disastrous effects that are never dreamt of. Thus, being for prolonged periods deprived of these bitter and acrid substances, when opportunity affords children very generally over-indulge in quite unripe and acrid fruits or acid drinks. If, however, the taste for bitter principles is allowed, or, better, gradually stimulated to develop, then such excesses are not indulged in. Similarly, a liberal supply of fresh ripe fruit helps to prevent the craving for, and excessive indulgence in, sugar or sweets. At first strongly acrid flavours, generally and advantageously, act as deterrants in the selection of foods but by experiment and by following the example of the parents the taste for these bitter principles becomes largely acquired. Frequent association of acrid with irritant principles, however, has naturally prevented a pronounced development of the instinct for bitter principles which, when fully developed, is somewhat antagonistic to the desire for sweets. The supply of sugar which was available for our ancestors was very limited and therefore prevented an excessive indulgence in it however strong the craving for it became. It is important to recognize this fact, not because the ruin of the teeth gives rise to many more serious troubles, nor because the injury to the teeth means ruin to the power to digest and relish some of the most luscious foods, but because it has become the fashion to belaud the dietetic value of sugar and to look upon it as an important food, while in reality it should be sparingly used and regarded rather as a condiment. What does it matter whether we can turn sugar into so many units of energy if at the same time it ruins the teeth and irritates the stomach to such an extent that healthy and vigorous digestion is lost? The use of condiments is a practical recognition of the value of bitter and acrid principles and a study of them reveals a philosophy which ought to influence our precepts with regard to the feeding of children.

It is, perhaps, impossible to estimate how far the capabilities of digesting or transmitting cellulose might be improved if the natural potentialities were allowed or stimulated to develop, instead of being suppressed and perverted. However, whether I have exaggerated our capabilities of transmitting cellulose or not, it is sufficient to find Dr. Campbell so distinctly enforcing our belief that "if physicians could be got to realise the importance of providing the jaws, teeth, and the muscular coats of the digestive tract with adequate work an untold amount of disease and suffering would be averted."

I am, Sirs, yours faithfully,

Wimpole-street, W., Dec. 24th, 1904. J. SIM WALLACE.

"WHO'S WHO" YEAR BOOK AND THE MEDICAL PROFESSION.

To the Editors of THE LANCET.

SIRS,—My attention has been called to a list of "leading London specialists" in the above publication for 1905 in which my name has been included. I hope it is unnecessary to say that this has been done without my knowledge or consent. My object in writing is to point out how harmful to the public as well as to the profession the information thus afforded, imperfect and generally misleading as it is, must be. Although I understand that the publication of names in this way is not legally preventable, notice of the matter in the columns of THE LANCET should go far towards avoiding a repetition of such a regrettable proceeding.

I am, Sirs, yours faithfully,

WILLIAM H. BENNETT.

Chesterfield-street, Mayfair, W., Dec. 30th, 1904.

THE CAUSATION OF SEX.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Sept. 26th, 1891, p. 713, appeared a paper by Dr. Andrew Wilson of Edinburgh advancing a provisional theory of sex determination, according to which the causation of sex was primarily a matter of nutrition affecting the ovum at the time of fertilisation; that is to say, an ovum fertilised premenstrually, being stronger and more vital, tends towards the male side, while an ovum fertilised post-menstrually, having lost much of its vitality, tends towards the female side. In 1893 a further article appeared in your columns[1] giving illustrative cases in support of the theory.

Now, without having any bias in favour of this or any other theory it appeared to me that it would be a matter of interest to put it to the test of practice under conditions which absolutely precluded any source of error. This has been done with the following results:—

X., aged 28 years, married in 1897; previous menstrual history normal; no conception permitted for one year, during which menstruation was perfectly regular. Child I.: In 1898 a girl was desired. The last menstrual period ended on Feb. 6th, 1898; impregnation took place between Feb. 8th and 16th—i.e., was post-menstrual; confinement expected Nov. 13th; actual date of birth Nov. 14th; result a girl; subsequent menstruation regular. Child II.: A boy desired; last menstrual period ended Oct. 3rd, 1900; impregnation took place between Sept. 24th and Oct. 2nd—i.e., premenstrually; confinement expected July 10th, 1901; actual date of birth June 28th, 1901; result a boy; subsequent menstruation regular. Child III.: A girl desired; last menstrual period ended Feb. 27th, 1904; impregnation post-menstrual, between March 1st and 11th, 1904; confinement expected Dec. 4th, 1904; actual date of birth Dec. 2nd; result a girl.

In these three instances the result occurred as desired; conception was impossible at any other times than those stated, and in each case the prediction was communicated beforehand to a medical friend. No other children were born and no miscarriages occurred. The theory in question involves the assumption of a relationship between ovulation and menstruation which has, so far as I am aware, not yet been proved. The facts, so far as they go, lend support to the theory though the cases are, of course, too few to be of much value. To obtain precise and definite data on this question is a matter of considerable difficulty, and a few cases in which the facts are certain are worth many in which there may be some element of uncertainty. Hence my reason for recording them. If the theory be correct that sex is already determined in the ovum before impregnation takes place these instances of pre-determination must be regarded as pure coincidences; coincidences, however, which under the conditions of the experiment can only be characterised as striking. For obvious reasons I withhold my name but inclose my card and shall be happy to communicate through you, Sirs, with anyone desiring further information.

I am, Sirs, yours faithfully,

MEDICUS.

THE L.S.A. QUALIFICATION AND MEDICAL APPOINTMENTS.

To the Editors of THE LANCET.

SIRS,—I am a member of a board which frequently has the duty of appointing a house surgeon and among the applicants we often have men holding the double qualification of the L.S.A. Lond. Almost invariably either a lay or medical member of the board will raise some objection to the L.S.A., mentioning that he thinks it an inferior qualification to the Conjoint Board of England, Scotland, and Ireland. Having employed men holding all the above

[1] THE LANCET, Dec. 30th, 1893, p. 1615.

qualifications and also university degree men I am quite of different opinion. Personally, I consider them perfectly equal to any ordinarily qualified man and anyone who takes the trouble to look up the examiners of the Apothecaries' Society of London will see that they are equal to any other examining board in the kingdom. As far as I know the report of the inspectors of the General Medical Council has always been satisfactory. I believe that the examiners in surgery are appointed by the General Medical Council themselves.

I am, Sirs, yours faithfully,

Jan. 2nd, 1905. "NOT AN L.S.A."

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Infirmary Poll.

It may be remembered that the question of "beds or no beds" at the central receiving house to be built in connexion with the Manchester Infirmary was referred to a meeting of the trustees. At a meeting of that body held on Dec. 15th, 1904, a motion that accommodation should be provided near the Piccadilly site for the treatment of medical and surgical casualties and dispensary out-patients, for giving first aid, for the treatment of out-patients living at a distance from the new infirmary, and for the detention under observation for a few hours of cases of doubtful diagnosis was carried by a large majority. A poll, however, was demanded by those in favour of an amendment proposing that there should be "20 beds, with all necessary equipment." The voting papers were issued on Dec. 17th and the returns were to be in by the 24th. The counting took place on the 28th. The number of voting papers issued was 1217. Of these 628 were returned. 385 were for the resolution (no beds) and 235 were for beds. Eight papers were spoiled. After all the agitation and excitement, the letters in the papers, and the strongly worded leading articles in newspapers in favour of the amendment, the number voting seems small. The opinion of the infirmary staff was, it is believed, unanimously in favour of the resolution and it was given expression to in some important letters from members of the staff which may have had more effect in guiding the opinion of the trustees than those from well-meaning laymen who were necessarily less conversant with the necessities of the case. Four or five years must elapse before the new hospital is ready and by that time it is believed that a greatly improved ambulance service will almost do away with the difficulties that some anticipate. After all, the distance from Piccadilly to Stanley-grove is not very great and the latter is conveniently situated for a very large population and time will most probably show that the fears now felt will prove to be groundless.

Reporting Cases of Anthrax.

A man employed by a firm of wool merchants at Bradford died on Christmas Day from anthrax and was buried on Dec. 27th. His employers reported the case to Mr. W. H. Seal, the chief inspector of factories for the district, and the medical attendant also did the same. The relatives submitted the medical man's certificate to the registrar of deaths who gave an order for burial and the body was buried. The registrar is reported to have said that there is nothing whatever in the by-laws or in the general instructions requiring him to communicate with the coroner in a case of anthrax. The Bradford city coroner, it is reported, though he has the power, sees no reason why he should have the body exhumed. Mr. Seal is making his own inquiries. This occurrence is to be regretted. If the grave of a cow that has died from anthrax is a danger the same thing will be true of the grave of a man dead from the same cause and cremation is indicated rather than burial.

Vaccination Passive Resisters.

On Dec. 27th, 1904, a Mr. Smith returned to Great Harwood after serving 14 days in Preston Gaol for refusing to obey a vaccination order. He was welcomed by a brass band and a procession which went from the station to the British School where the pastor of the United Methodist Free Church presided over an indignation meeting. Mr. Smith was hailed, "not as a gaolbird, but as one who had the courage and manhood to suffer for conscience sake." In reply he said he believed "that the Vaccination Act, which was contrary to the spirit of equity and justice, would be removed from the statute book so soon as men showed that they preferred prison to compliance with its demands." A motion was carried pledging those present not to support those candidates for Parliament who would not advocate local option in vaccination. This wrong-headedness is becoming a serious and a very costly danger to the country.

"Schools or Nurseries?"

The medical officer of health of Burnley says that the infant schools there "are little more than nurseries," that teaching children three years old and under is a farce, and that their congregating together strongly disposes to the spread of measles and whooping-cough. He considers that the Board of Education cared little for infants of tender age or it would not pay for their attendance at school. "The school inspectors don't care and parents don't care; there is only the health committee of the corporation left to protect them." There is a good deal of truth in this indictment, the parents certainly regarding the infant school as a place where they can send their children for some hours a day and so be free for a while from the need of looking after them.

The Recent Fog.

Manchester shared in the visitation of fog which was recently so widely spread. The dangers of the streets, quite sufficient at ordinary times, were greatly increased. The discomfort to the eyes, the noses, and the lungs of healthy people was not merely annoying, it was often serious. And though it would be difficult to calculate the injury done to clothing and to all sorts of textile materials there is no doubt it is very great. In Manchester there was a sudden rise in the death-rate from 21·6 to 26·4 per 1000, an increase of over 22 per cent. Of these deaths 42·5 per cent. were due to diseases of the respiratory organs. Whatever may come of Sir Oliver Lodge's experiments in dealing electrically with fog all will agree with him that it is our primary duty to abolish smoke. As a leaderette in the *Manchester Guardian* of Dec. 29th, 1904, says, "the most fatal element in city fogs is that contributed by the smoke nuisance, which is preventable, and the deaths due to it must be regarded as deaths for which our apathetic and inadequate smoke policy is definitely to blame." Many of your readers may remember that at one of the Christmas shows of fat cattle in London some years ago several of these overfed but valuable beasts died as the direct effect of the fog and this object lesson produced some impression at the time. But it was soon forgotten. Of course, much of the extra mortality caused by the fog is not shown by the sudden rise in the death-rate but will be spread over some weeks. In this matter of prevention of smoke are we guilty of criminal negligence? For if we should sometimes have fog even without smoke it would have lost its sting and deaths directly due to it would be rare.

Jan. 3rd.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Exclusion of Young Children from School.

THERE appears to be a growing conviction among medical officers of health, medical officers of schools, and others who have given the subject consideration that the attendance of children under five years of age in public elementary schools is injurious to the mental and physical development of such children. In a paper read before the Childhood Society in March, 1902, and published in *Public Health*, vol. xiv., p. 570, Dr. Arthur Newsholme discussed the question very fully and maintained that such attendance "caused a heavy annual death-roll and a large mass of sickness often leaving behind it permanent weakness and ill-health" and the Inter-Departmental Committee on Physical Degeneration considers that school attendance in rural districts should not be compulsory till the children are six or possibly seven years of age and should be discouraged, if not absolutely prohibited, under five years. In October last the education committee of Newport (Mon.), on the recommendation of the medical officer of health (Dr. J. Howard-Jones), passed a resolution that after the opening of the public elementary schools in Newport after the Christmas holidays no child under four years of age should be admitted or retained in the schools. In support of his recommendation Dr. Howard-Jones pointed out that the school attendance of infants at

age periods when they are particularly liable to infection was undoubtedly responsible for the propagation of epidemic and consequently for a large proportion of preventable deaths and that it was of the greatest importance to postpone the period at which young children might be exposed to infection until they were of an age when certain diseases—e.g., measles—are not so fatal. The resolution of the education committee was brought to the notice of the Board of Education by His Majesty's inspector and the Board in a communication to the committee expressed the opinion that places should be provided in the public elementary schools for any children over three years of age whose parents desire to send them to school and, further, that it was undesirable for the committee to adopt a regulation excluding all children under four years of age from the schools. In support of its contention the Board reminds the committee that Section 1 (1) of the Elementary Education Act, 1891, provides for the payment of grants to local education authorities on account of the attendance at school of children over three years of age.

Death of Mr. Edward Treharne, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg.

The news of the sudden death from fatty degeneration of the heart of Mr. Edward Treharne of Barry on Dec. 29th, 1904, came as a great shock to the inhabitants of the district. Mr. Treharne was born in 1859 and shortly after taking the diplomas of the Royal Colleges of Physicians and Surgeons of Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow he began to practise in Barry, a town at that time increasing with remarkable rapidity. He was on the commission of the peace for the county of Glamorgan, a Freemason, and a prominent politician, having for some time been chairman of the Barry Conservative Association. He was also chairman of the Barry local board of health and later of the urban district council. He had a fine presence, was a noted athlete, and had played for Wales in international football. A widow and three children are left to mourn their loss.

Plymouth Borough Asylum.

Great progress has been made recently with the enlargement of the Plymouth Borough Asylum at Blackndon. The new wing for male patients will be completed within a month and the new wing for female patients by the end of March. The contract also provides for the addition of a storey to the old block of buildings. The electric light is being installed in all the buildings and a system of heating by hot-water pipes is being introduced. There are at present 276 patients in the asylum and by the enlargement accommodation will be provided for 200 more.

Jan. 3rd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Glasgow Parish Council: Annual Report on Certification of Lunatics.

Mr. J. Carswell, certifying physician in lunacy to the Glasgow parish council, in his annual report for the year ending May 15th, 1904, states that there were 886 applications made to the inspector of poor on behalf of persons supposed to be insane. This number is 46 more than last year and is the highest in the history of the parish. But the number of applications bears no definite relation to the amount of certifiable insanity occurring in the parish, as is shown by the fact that the number of persons certified insane is less than in either of the last two years. There were certified insane 544 cases, as against 549 the previous year and 565 the year before. Of the 544 cases certified 164 had suffered from previous attacks of insanity; the remaining 380 represent the actual number of persons who became insane for the first time during the year. The actual number of first attacks certified this year is seven less than last year and the proportion per 100,000 of the population is 63·3, compared with 65·5 last year. This is the lowest production rate for four years. It is right to add that the estimated population upon which the rate is calculated is probably slightly higher than the actual population, because the city assessor's survey this year has shown an increase of uninhabited houses and consequently the population must be less than that estimated on the usual basis. Tables given reveal several facts of great significance, the most important of which are (*a*) that at all ages under 45 years insanity affects males and females almost equally; (*b*) that at all ages over 45 years more men become insane than women and both sexes become insane in larger proportion to the numbers living at these ages as they advance in years; and (*c*) that there is a relatively larger number of persons sent to asylums at ages over 45 years than under. The figures given in connexion with the last point are worthy of careful attention. The number of persons living in Glasgow parish at ages of 15 to 45 years is roughly 300,000 and they yield an annual average of 238 insane persons, or 8 per 10,000 of population; the number of persons living at ages over 45 years is under 100,000 and they yield an annual average of 128 insane persons, or slightly over 12 per 10,000 of population. But the difference in ratio is not only in degree but also in character; while the rate of 8 per 10,000 at the earlier ages is almost uniformly the same from year to year, the rate for the latter ages varies from a minimum of 11 to a maximum of 16 per 10,000. Clearly the ages above 45 years are not only more productive of insanity but there is an important difference in the manner in which the causes of insanity operate above and below 45 years. In his last annual report Mr. Carswell indicated the grounds upon which he based his opinion that economic and social considerations, which have but little to do with the causation of insanity viewed as a disease, account for the relatively larger number of persons who become pauper lunatics at the later ages in life and for the fluctuations in the production rate at those ages. But the ages from 15 to 45 years are the most important in relation to the question whether lunacy statistics indicate a process of mental deterioration going on in the community. These are the ages of greatest stress and temptation and they embrace the period of child-bearing. It cannot be said that a production rate of 8 per 10,000 relating to a section of the population numbering 300,000 is alarming. If the experience of the last four years is normal, as it appears to be, then we are justified in interpreting the steady production rate as meaning that so far as the masses of the people are concerned there is no evidence of an increasing mental deterioration. It is shown that there is no definite relation between the amount of lunacy and the death-rates, general and infantile. No doubt both the lunacy-rate and the death-rates are dependent upon two main factors—viz., inherent vital capacity and conditions of environment; but insanity is much more dependent upon the former than upon those physical and social conditions that affect the general and infantile death-rate. Speaking generally, it may be said that the greater the drunkenness of a community the greater will be its production of insanity. The figures given confirm that general view but they give no support to the exaggerated views that have been expressed in various quarters that lunacy caused by alcohol is seriously increasing in Scotland. The want of definite relationship between the number of public-houses in a district and the amount of lunacy is the counterpart of what evidently applies also to the relationship between the lunacy-rates and the death-rates and is open to the same explanation—viz., that in the causation of insanity the inherent tendency is of more importance than the conditions of environment. The number of persons treated in the observation wards during the year was 261, of whom 24 were afterwards removed to the asylum, 13 died, and 219 were discharged recovered or relieved, leaving five under treatment. This is the largest number treated and the largest number of recoveries. With the opening of the new psychiatric department at the Eastern District Hospital there will be a decided increase in the number of patients treated without recourse to the asylum.

Small-pox.

From Dec. 16th to 31st, 1904, inclusive the following 11 cases of small-pox were notified to the Local Government Board: from the Mull district, one; from the burgh of Dundee, three; from the burghs of Coatbridge and Glasgow respectively, one; from the Eastern district of Stirling, two and from the burgh of Falkirk, three.

Jan. 3rd.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Irish Population Statistics.

THE Irish Registrar-General has issued decennial summaries of the returns of marriages, births, deaths, and causes of death in Ireland for the years 1891–1900. The estimated population of Ireland has diminished to the

extent of 249,455, or at the rate of 5·29 per cent., between the middle of the year 1890 and the middle of the year 1900, a decrease uninterrupted from year to year. The total number of births registered during the decade was 1,055,020, as compared with 1,150,463 for the previous ten years, being 95,443, or 8·3 per cent., less. The deaths during this decennium were 836,035, as compared with 883,156 for the previous ten years, showing a decrease of 5·3 per cent. but an increase in the average annual death-rate from 17·9 in the earlier to 18·2 per 1000 living in the later period. During the decade 433,526 emigrants, or 9·5 per 1000 of the mean population, left Ireland. The number of emigrants would thus appear to have surpassed the excess of births over deaths by 214,541. The number of emigrants in the preceding ten years was 770,706. There were 221,608 marriages during the ten years and during the past 40 years there has been a well-marked decrease in early marriages in Ireland. Judging by those who "signed their names in writing" as compared with those who signed "by mark," elementary education has made great progress; and it is curious to note that while in Ulster, Munster, and Connaught, taking the figures for each year of the decade, the married women seem to be better educated than the men, in Ulster the reverse was the case until the year 1900, when 85·5 per cent. of the men and 86·3 per cent. of the women signed their names in writing. There were 1,055,020 births registered in Ireland during this decade, of which 1,027,126, or 97·4 per cent., were legitimate, while 27,894, or 2·6 per cent., were illegitimate. The proportion of the illegitimate births to the total births registered was greatest in Ulster where it reached 3·7 per cent., and least in Connaught, where it reached a percentage of only 0·6. It is also observed that in the rural districts of Ulster and Leinster the percentage of illegitimate births is only slightly below that in the urban districts, while in the other two provinces, where the rural population is more largely in excess of the town population than in either Leinster or Ulster, the difference between the rates in the civic and rural districts is more marked. 836,035 deaths were registered during the decade, and of these 86,231 were due to "specific febrile or zymotic diseases"—that is, 10·3 per cent. of all the deaths recorded. There were 235 deaths from small-pox (five deaths per annum in every 1,000,000 of the population), 4422 from scarlet fever (not a quarter of the mortality in the ten years ending with the year 1880), 1904 from typhus fever (a very great relative diminution), while typhoid fever caused 8692 deaths, which shows a slight increase on the previous ten years. Of these deaths 4142 occurred in Ulster. There were 12,048 deaths from whooping-cough and 3440 from diphtheria. Influenza caused 20,805 deaths, an enormous increase over former decades. There were 1601 deaths from intemperance, an increase being shown in the number of deaths of females due to chronic alcoholism. 24,435 deaths occurred from cancer; the increase is such that in the ten years 1891–1900 the registered mortality from cancer of persons 25 years old and upwards was 52 per cent. in excess of that for the ten years 1871–80 and 26 per cent. in excess of that for the ten years 1881–90. The highest county-rate mortality for cancer was in Armagh. The tuberculosis death-rate has risen in Ireland since the decade 1871–80, a fact which seems to show that the sanitary and other measures which have been undertaken for the improvement of the public health have not here arrested the ravages of this formidable disease.

Queen's College, Belfast.

Dr. W. St. C. Symmers of Cairo has been appointed Musgrave Professor of Pathology at Queen's College, Belfast.

Small-pox in Belfast.

There is no sign of decrease in the small-pox epidemic and the hospital at Purdysburn is so full that it may be necessary to erect another building. Of the 172 cases treated in it five have never been vaccinated, three were said to have been vaccinated in infancy, but the marks were very poor and indistinct, and no case whatever has been admitted where the patient had been revaccinated. Eight deaths have occurred and in each of the fatal cases the marks of vaccination, if present at all, were inefficient and in every case the disease was of a bad type and the eruption was confluent. Of these 172 cases admitted to Purdysburn Hospital since the beginning of the outbreak 130 have been discharged convalescent, eight have died, and 34 remain in hospital. In the reception house during the same period 552 persons were admitted. Of these, 445 have been discharged, leaving 44 still therein. At present a virulent type of measles is prevailing in Belfast and scarlet fever of a mild type is epidemic, but typhoid fever is much less prevalent. Between Nov. 20th and Dec. 17th, 1904, there were only 32 cases.

Jan. 3rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Strabismus.

AT the meeting of the Academy of Medicine held on Dec. 20th, 1904, M. Landolt read a paper on the above subject. After having reminded his audience that alterations in the mobility of the eye were a very frequent cause of visual troubles he showed that the usual operation for strabismus very often simply transforms a convergent strabismus into a divergent one. He proposed therefore to substitute for the usual operation one to which he has given the name of "muscular elongation"—i.e., he proposed to strengthen the weak muscle instead of weakening the strong one. Even in those very rare cases where muscular section or tenotomy can be carried out for extreme shortness of the muscle M. Landolt suggested a new operative procedure by which he preserves the point of attachment of the muscle and elongates it instead of transplanting the attachment further forward. In this way the action of the muscle after operation conforms more strictly to the normal than by the old operative method.

The Advantages and Disadvantages of "Dechloridation" in Epileptics.

At the meeting of the Hospitals Medical Society held on Dec. 18th M. Jules Voisin, M. Roger Voisin, and M. Krantz communicated the results of some researches carried out by them in 50 cases of epileptic adults and 28 cases of epileptic children. The results showed that a chloride-free diet did not by itself produce any modifications as to the epileptic attacks but that to bring about a favourable result the administration of bromide must be combined with the elimination of chloride from the diet. This method of treatment reduced the fits by 69 per cent. A chloride-free diet is difficult to carry out in these patients especially in adults and in these latter a peculiar kind of delirium is wont to occur signalised by melancholia with mental confusion and hallucinations. It arises from insufficient nourishment and possibly directly from the absence of salt. No signs of bromide poisoning were noted. The observers recommended alternations of a chloride-free diet lasting for 15 days with a two months' period of ordinary diet. They considered that the physical and chemical phenomena which this method determines facilitate both the urinary excretion and the fixation of the bromide. Moreover, this method of a varied diet gives rise to full excretion and the complications of a chloride-free diet, which are often serious, are thus avoided.

Peroxide of Hydrogen in the Treatment of Infantile Dyspepsia.

Milk treated with peroxide of hydrogen in the proportion of one or two grammes of a 12 volume solution to 100 or 200 parts of milk seems to acquire properties comparable to those of kephir. It checks vomiting and diarrhœa and is readily taken by children. Peroxide of hydrogen acts in the stomach as a eupeptic and since it is a very powerful antiseptic it doubtless acts as such both in the stomach and in the intestines. These interesting results were communicated to the Therapeutical Society at a recent meeting by M. Gallois, M. Flourens, and M. Walter. In a general way gastro-intestinal antiseptics exercise an inhibitory influence not only on microbial ferments but also on the normal ferments of the organism. Peroxide of hydrogen is, however, both antiseptic and eupeptic. It is thus particularly indicated in cases of atonic dyspepsia accompanied by abnormal fermentation.

The Treatment of Sea Sickness by Hypnotic Suggestion.

At the meeting of the Society of Hypnology and Psychology held on Nov. 29th there was a most interesting discussion on the above subject. The first speaker was Mr. Hamilton Osgood of Boston. He cited his own case and told the meeting that on four voyages from England to America he had by suggestion prevented sea sickness. Not only had

he not vomited but he had a good appetite and this immunity lasted throughout the voyage. M. Berillon suggested that persons liable to suffer from sea sickness, who were never sure of finding a medical man on board who could practise hypnotism, should undergo suggestion before embarking. For his own part he had many times successfully suggested to a person during sleep a view of the crossing and the idea that he would not be ill. M. Farez had treated by hypnotic suggestion not only sea sickness but also carriage sickness and train sickness. M. Le Menant des Chesnais went even further. He cited the case of a lady whom he had hypnotised against train sickness. During his last holiday he was with her in a small boat, and a simple statement on his part that she would not be ill had sufficed to prevent sea sickness.

The Workmen's Compensation Act.

One point in this law which greatly concerns medical men has just been the subject of a circular issued by the Minister of Justice. The circular first points out that there is a provision of the law laying down that in every case in which expert medical evidence is necessary the expert shall not be a medical man who has treated the patient or a medical man in the service of the contractor or the assurance society to which the contractor is affiliated. The Minister then adds that he has been informed that despite this provision certain of the magistrates are in the habit of summoning as an expert witness the medical man attached to the factory where the accident has taken place or to the assurance company which guarantees the owner of such factory. The Minister therefore begs to call the attention of magistrates to the above-mentioned provision and at the same time to remind them that the provision has reference to those cases in which the magistrates sit as judges to decide on the amount of daily compensation payable, as well as to those in which they sit with a view to decide upon cases of permanent incapacity when they simply have to examine the injured man under paragraph 3 of Article V. of the same law. This circular of the Minister of Justice remedies an abuse against which every medical syndicate has protested without ceasing.

The Academy of Medicine.

At the meeting held on Dec. 27th, 1904, M. Chamberland was elected as "*associé libre*" of the Academy of Medicine on the third ballot by 53 votes in room of the late lamented M. Duclaux.

Jan. 2nd.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Use of Adrenalin by Immigrants to conceal Trachoma.

THE Surgeon-General of the Public Health Service publishes reports of certain officers of that service to the effect that they have noticed for some time past on everting the eyelids of some immigrants that they presented a peculiar blanched appearance. At first it was thought that this was due to the treatment which they might have received prior to embarkation. Recently, however, several hours after the first inspection was completed and all suspicious cases had been set aside, it was decided to make a re-examination of the entire number. While this work was going on a number of additional cases of trachoma was found. Upon following some immigrants behind a convenient inclosure they were found to be busily engaged in instilling a substance into their eyes which subsequent investigation showed to be adrenalin. Experiments with this drug proved that if instilled into the eyes of mild cases of trachoma practically all evidence of the disease could be obliterated for about half an hour. It was learned that on arrival at port and just before the medical inspection was made immigrants had been in the practice of instilling adrenalin into their eyes for the purpose of deceiving the inspector.

A Testimonial to Professor Osler.

The retirement of Professor Osler from the Johns Hopkins Hospital and School will be marked by the creation of a testimonial, as a recognition of distinguished services, by the profession and citizens of Baltimore. The proposition is so popular as to attract the attention of the country and the movement bids fair now to become national in its scope. The governor of Maryland is to be the national treasurer. Upwards of $10,000 have already been subscribed. The form which this memorial shall take has been the subject of much discussion, but on consultation with Professor Osler, it has been decided to erect a building for the accommodation of the valuable medical library of the medical and chirurgical faculty of Maryland, so largely the result of his own interest and effort.

Medical Service in the Panama Commission.

The United States Civil Service Commission has formulated its rules governing the appointments to the service of the Panama Commission. Some, including sanitary officers, are exempted from the necessity of examination. These sanitary officers are the chiefs of the divisions but the surgeons under them must pass the civil service examinations. Special attention will be given to the quality of the applicants' experience and applicants who have had experience in hospitals, particularly in the treatment of tropical diseases, will receive special credit. Only those who have had extensive hospital experience and are familiar with the treatment of tropical diseases will be selected for appointment to the highest salaried positions. Promotions may be made in the discretion of the Isthmian Canal Commission from the lower to the higher positions in this grade. These examinations are open to all citizens of the United States who comply with the requirements. The term of service will be during the construction of the canal, which will extend throughout a period of eight or more years. Pharmacists, hospital interns, and trained nurses will also be appointed under similar rules after proper examinations.

Health of the Navy.

The Surgeon-General of the Navy reports that the health of the men was not as good as during the preceding year. The average strength of the active list during the year 1903 was 37,248. The total number of admissions for all causes was 28,569, the ratio per 1000 strength being 782·24, as compared with a ratio of 767·63 for the previous year, and 797·10 for the eight preceding years. There were 24,545 admissions for disease and 4024 for injury, giving ratios of 671·82 and 110·04 respectively. The daily average of patients was 1389·03 and the ratio per 1000 strength 35·23. The average of sick days for every man in the navy and marine corps was 12·88 and the average duration of treatment for each case was 16·49 days. The ratio of persons invalided from the service during the year for disease and injury was 41·37, being 36·19 for disease and 5·18 for injury. These ratios are much higher than those of the previous year, owing to the large number of recruits. The ratio of deaths during the year was 6·01 per 1000, being a ratio of 4·40 for disease and 1·60 for injuries. It is stated that venereal diseases continue greatly to impair the fighting strength of the navy. Excepting general infectious diseases venereal diseases gave a greater number of sick days than any other class. It appears that while the admissions to the sick list per 1000 of strength were greater than in the previous year the mortality was not only less but it was lower than the average of the past eight years. The Surgeon-General urges the importance of having trained women nurses as a part of the medical department of the navy. They would supply better and more efficient nursing to the sick and in the event of war the men could be released from hospital duty and assigned to vessels of war. The recommendation of legislation authorising the employment of dentists for service in the navy is renewed. The result of the experiment of treating consumptives in tents at Pensacola, Florida, in spite of many drawbacks, was so favourable that Congress is urged to make special provision for an appropriate site for a camp for tuberculous sailors.

Hospitals for Panama.

By a recent agreement between the United States and the Republic of Panama it is provided that the United States will construct, maintain, and conduct a hospital or hospitals either in the canal zone or in the territory of the Republic, at its option, for the treatment of persons insane or afflicted with the disease of leprosy and any indigent sick, and the United States will accept for treatment therein such persons of these classes as the Republic may request but the order shall not be operative unless, first, the Republic of Panama shall furnish without cost the requisite lands for these purposes if the United States shall locate such hospital or hospitals in the territory of the Republic, and, secondly, that the Republic shall contribute

and pay to the United States a reasonable daily per capita charge in respect of each patient entering upon the request of the Republic, to be fixed by the Secretary of War of the United States.

Unification of Medical Statistics.

The Surgeon-General of the United States army has issued in separate form the complete series of the tables of international military medical statistics. These tables were adopted at the meeting of the International Commission for the Unification of the Medical Statistics of Armies held at Budapest in 1894. They were somewhat modified at the meeting held at Madrid in 1904. 12 countries were parties to the agreement but only one other has published all the ten tables.

Dec. 24th, 1904.

Obituary.

FRANCIS HENRY BLAXALL, M.D. ST. AND., M.R.C.S. ENG., L.S.A.,

FLEET SURGEON, R.N. (RETIRED); LATE MEDICAL INSPECTOR OF THE LOCAL GOVERNMENT BOARD.

Dr Francis Henry Blaxall, who died at his residence, Clan Lodge, Bathwick, Bath, on Dec. 23rd, 1904, was a public official with an admirable record for work who was personally known to two or three generations of medical men. Having become qualified as M.R.C.S. Eng. and L.S.A. as far back as 1847, he was appointed assistant surgeon in the Royal Navy in 1849, becoming staff surgeon in 1856 and fleet surgeon in 1869. Having then graduated in medicine at the University of St. Andrews, he served as assistant surgeon on H.M.S. *Colossus* in the Baltic during the Russian war and received for his services the Baltic medal. On H.M.S. *Mégaera* in 1860–63, he took charge of military and naval invalids from the Mediterranean. Later he was appointed to H.M.S. *Urgent*, commanded by his friend Captain S. H. Henderson, which for three years was engaged almost continuously in trooping duties on the West Coast of Africa and in the West Indies under conditions which entailed a large amount of serious sickness and cast a heavy responsibility on the surgeon in charge. Blaxall made a notable contribution to the study of the great epidemic, termed at the time "malarious fever," which devastated Mauritius in 1867–68, killing some 43,000 persons (Royal Navy Report, 1867). He retired from the Royal Navy as fleet surgeon and when in 1871 the medical department of the Privy Council became merged in the Local Government Board, Blaxall, who had already worked for the Council under Simon's direction, became a medical inspector of the new Board. Buchanan, Ballard, Thorne-Thorne, and W. H. Power in those early days were among his fellow workers. As an inspector in the "seventies" Blaxall took an active part in the central organisation of the administration of public vaccination necessitated by the Vaccination Acts of 1867–71. Later he was largely occupied in connexion with the formation of port sanitary districts round the English coast and in supervising the administration of port sanitary authorities, particularly as regards their equipment for dealing with cases of cholera and other exotic infectious diseases, which the Local Government Board was then beginning to shape on lines which have now become familiar. The principal means by which this was effected was the institution of a "sanitary survey" of different localities in anticipation of cholera in the early "eighties." On this survey the bulk of the work in connexion with ports and shipping was organised and directed by Blaxall, with excellent results. Valuable reports on this subject were published in the medical officer's annual reports for 1886 and 1887. Another important inquiry, made by Blaxall in 1881, was into the sanitary aspects of emigration from, and immigration into, the United Kingdom and the intercommunication which takes place between home ports. Various investigations into local outbreaks of infectious disease may also be referred to, as in certain of these Blaxall contributed much useful information as to epidemic enteric fever and diphtheria in their relation to insanitary conditions.

Soon after his retirement from the Royal Navy, Blaxall married, in 1871, a daughter of Admiral J. G. McHardy. It was formerly the custom of medical inspectors to live in provincial centres and Blaxall, whose work was mainly in the south-western and western counties, had his house and headquarters at Bath. Many public vaccinators and medical officers of health in those counties, and, indeed, almost all with whom he came into official relation, will recall with pleasure Blaxall's cheery and kindly personality and his helpful and conscientious performance of duty. His relations with his colleagues were always of the most cordial description, and he worked with Buchanan, his chief for 12 years, in close personal friendship and with conspicuous loyalty. For several winters before he retired from office Blaxall suffered from severe attacks of bronchitis and at the time of his retirement in 1891 his ill-health was aggravated by a long battle with the Treasury which arbitrarily insisted that the pension earned by his long period of civil employ should be diminished by the deduction of the retired naval pay to which he had long ago become entitled by independent service. Blaxall felt the injustice of this decision keenly; he fought the question strenuously and ultimately with success. As a result a principle was established by which many retired members of both services (including policemen, prison warders, and others in the humbler walks of life) have since been able to obtain equitable treatment. Blaxall possessed to a marked degree the openness, sincerity, and devotion to duty which are so often associated with the sailor and which in his case were combined with a kindliness and an unselfishness which endeared him to all. He never forgot his sea service and in later life took great pride in watching and assisting the progress of his many younger relatives and friends in the Royal Navy. Clan Lodge, his house in Bath, was always open—to be near Bath was of necessity to go to see Blaxall—and his kindly welcome there was always ready and not soon to be forgotten.

GEOFFREY EDWARD HALE, M.B., B.C. CANTAB., M.R.C.S. ENG., L.R.C.P. LOND.

THE death is announced of Dr. Geoffrey Hale of Eton. Like many of his professional brethren before him his life has been sacrificed in the pursuit of his duty. In attending a case of scarlet fever he contracted the disease and as a complication septic pneumonia from which he died on Dec. 31st, 1904, at the early age of 38 years. Dr. Hale, who was the son of the late Rev. E. Hale, known to so many generations of Etonians as a "dame," a mathematical and a science master, was educated at Eton and Cambridge and at St. George's Hospital. There he won a scholarship and held various house appointments, while at Cambridge he acted for some time as assistant demonstrator in anatomy and physiology. He was also honorary secretary to the Medical Officers of Schools' Association. He married in 1894 the eldest daughter of Canon H. Kynaston of Durham who was, under his former name of Snow, well known as an Eton master and tutor from 1858 to 1874.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced: Dr. Curt Freidenberg, a Berlin gynæcologist.—Dr. J. C. van Aubel, formerly professor of pharmacodynamics and forensic medicine in the University of Liège.—Count Pietro Gradenigo, professor of clinical ophthalmology in the University of Padua.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At examinations for medical and surgical degrees held in Michaelmas term the following satisfied the examiners:—

FIRST EXAMINATION.

Part II., Elementary Biology.—P. B. M. Allan, and W. A. Anderson, Clare; H. A. Ash, Pembroke; E. Billing and L. Bromley, Caius; J. S. Burn, Trinity; H. C. Davis, Clare; M. E. Dellschaft, Jesus; R. Ellis, Catharine; H. G. Greaves, Emmanuel; A. R. Hargreaves, Trinity; T. W. Haward, King's; R. Heaton, Christ's; G. Holmes, Caius; O. R. Horwood, Corpus Christi; R. H. Hutchinson, B.A., Clare; A. P. Methuen, Trinity; G. R. Mines, Sidney Sussex; C. G. H. Moore, Caius; A. F. Mercom, Clare; G. W. Morrice, Trinity; N. Mutch, Emmanuel; J. R. Newmarch, Pembroke; W. M. Penny, Jesus; H. B. Richmond, King's; J. B. Ronaldson, St. John's; A. Sandison, Trinity; R. C. Staples-Browne, B.A., Emmanuel; R. J. Vernon, B.A., Caius; and W. M. Weddell, Christ's.

FOREIGN UNIVERSITY INTELLIGENCE.—*Breslau:* Dr. Bruno Heymann has been recognised as *privat-docent* of Hygiene.—*Innsbruck:* Dr. Karl Mayer, Extraordinary Professor of Psychiatry and Nervous Diseases, has been promoted to an Ordinary Professorship.—*Jena:* Dr. Heinrich Eggeling, *privat-docent* of Anatomy and Prosector to the Anatomical Institute, has been promoted to an Extraordinary Professorship.—*Kieff:* Dr. G. Malkoff of St. Petersburg has been appointed to the chair of Internal Pathology and Therapeutics.—*Königsberg:* Dr. Hans Strehl has been recognised as *privat-docent* of Surgery.—*Seville:* Dr. Augusto Pi y Suñer has been appointed to the chair of Physiology.—*St. Petersburg (Military Medico-Chirurgical Academy):* Dr. V. Chagovetz has been recognised as *privat-docent* of Physiology.—*Strasburg:* Dr. A. Schwenkenbecher of Tübingen has been recognised as *privat-docent* of Internal Medicine.—*Vienna:* Dr. Johann Fein has been recognised as *privat-docent* of Laryngology and Rhinology.—*Warsaw:* Dr. Tikhanoff of St. Petersburg has been appointed Extraordinary Professor of Anatomy.

THE MOTOR MANIAC.—To drive a 14 h.p. motor-car through the streets of Lambeth on a wet night at such a high speed that witnesses are unable to read its number seems an unusual proceeding; to jump an excavation in the roadway nine feet long by four feet deep and four feet six inches wide, crashing through the surrounding poles and protecting lamps, is more remarkable; and for the car to proceed afterwards on its wild career at the same speed minus part of one hind wheel would appear incredible. All these feats of fancy "chauffeurship" were, however, performed by William Thomas on Dec. 10th last. We congratulate the public on the fact that Mr. Thomas was sentenced on Dec. 30th at Westminster police-court to two months in prison and the manufacturers of the car on the fine quality of their wheelwrights' work. The identification plate of the offender was not decipherable and he was only traced through his own employer who had reported the injuries of the car to the police.

RUSSIA'S APPRECIATION OF THE NOBEL PRIZE.—The patron of the Russian Imperial Institute of Experimental Medicine, Prince Alexander Petrovitch Oldenburg, gave a dinner on Dec. 23rd, 1904, in honour of Professor I. P. Pawlow, the principal of the physiological section of the institute, on the occasion of his having been awarded the Nobel prize for his distinguished scientific works. In the course of the evening the giver of the dinner, who presided, turned to Professor Pawlow and said: "I congratulate you on your having been awarded the Nobel prize. That great scientific victory gladdens not only the institute but all enlightened and thoughtful Russia." The guests numbered 40 and included many leading Russian scientific men.

SOUTH DEVON AND EAST CORNWALL HOSPITAL.—The sum of £825 was collected in Plymouth on Hospital Sunday, Oct. 30th, 1904, and this amount has been handed over to the South Devon and East Cornwall Hospital in that city.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, 41 and 43, Maddox-street, Bond-street, W.
Human Embryology and Morphology. By Arthur Keith, M.D., F.R.C.S., Lecturer on Anatomy, London Hospital Medical College. Second edition, revised and enlarged. Price 12*s.* 6*d.* net.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.
Les Médications Préventives: Sérothérapie et Bactériothérapie. Par le Dr. L. Nattan-Larrier, Chef de Clinique de la Faculté de Médecine à l'Hôtel-Dieu. Préface par le Dr. Netter, Professeur agrégé à la Faculté de Médecine de Paris. ("Les Actualités Médicales" Series.) Price Fr.1.50.

CHATTO AND WINDUS, 111, St. Martin's-lane, W.C.
Herbert Fry's Royal Guide to the London Charities, 1905. Edited by John Lane. Price 1*s.* 6*d.*

ENGLEHARD, G. P., AND COMPANY, 356-362, Dearborn-street, Chicago.
The Anatomy of the Brain. A Manual for Students and Practitioners of Medicine. By J. F. Burkholder, M.D., Professor of Anatomy in the Illinois Medical College and the Illinois Eye, Ear, Nose, and Throat College. With an Introduction by Prof. Henry H. Donaldson, of the Neurological Laboratory of the University of Chicago. Price $2.00.

FISCHER, GUSTAV, Jena.
Beiträge zur pathologischen Anatomie der Pest. Von Professor Dr. Hermann Dürck, Assistent am pathologischen Institut in München. Sechstes Supplementheft der Beiträge zur pathologischen Anatomie und zur allgemeinen Pathologie herausgegeben von Professor Dr. E. Ziegler, Freiburg i. Br. (Aus dem pathologischen Institut in München.) Price M.20.
Mitteilungen aus der Augenklinik des Carolinischen Medico-Chirurgischen Instituts zu Stockholm. Herausgegeben von Dr. J. Widmark, Professor der Augenheilkunde am Carolinischen Medico-Chirurgischen Institut zu Stockholm. Heft VI., price M.3; Heft VII., price M.4.00.

KARGER, S., Karlstrasse, 15, Berlin.
Die angeborene Pylorusstenose im Säuglingsalter. Von Dr. Jussuf Ibrahim, Privatdozent für Kinderheilkunde. (Aus der Kinderklinik zu Heidelberg: Direktor Hofrat Prof. O. Vierordt.) Price M.3.50.
Die Färbetechnik für das Nervensystem. Von Dr. Bernhard Pollack, Augenarzt in Berlin. Dritte, wesentlich erweiterte Auflage. Price M.3.50.

LEHMANN, J. F., Heustrasse, 20, München.
Lehmann's Medizinische Handatlanten. Band XXXII. Atlas und Grundriss der Kinderheilkunde. Von Dr. R. Hecker und Dr. J. Trumpp, Privatdozenten an der Universität München. Price M.16.

REBMAN, LIMITED, 129, Shaftesbury-avenue, W.C.
Mental Defectives: Their History, Treatment, and Training. By Martin W. Barr, M.D., Chief Physician, Pennsylvania Training School for Feeble-minded Children, Elwyn, Pa. Price 17*s.* 6*d.* net.
A Text-book of Human Physiology. By Albert P. Brubaker, A.M., M.D., Professor of Physiology and Hygiene in the Jefferson Medical College. Price 17*s.* 6*d.* net.
A Treatise on Bright's Disease and Diabetes, with Especial Reference to Pathology and Therapeutics. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania. Second edition, illustrated. Including a section on the Ocular Changes in Bright's Disease and in Diabetes by George E. de Schweinitz, M.D., Professor of Ophthalmology in the University of Pennsylvania. Price 17*s.* 6*d.* net.

SAUNDERS, W. B. AND COMPANY, 9, Henrietta-street, Covent Garden, W.C.
Diseases of the Liver, Gall-bladder, and Bile-ducts. By H. D. Rolleston, M.A., M.D. Cantab., F.R.C.P., Physician to St. George's Hospital, London. Price 25*s.* net.

STUBER, A. (C. KABITZSCH), Würzburg.
Röntgenologisches Hilfsbuch. Eine Sammlung von Aufsätzen über die Grundlagen und die wichtigsten Hilfsmethoden des Röntgenverfahrens. Mit einem Anhang über Radioaktivität. Gesammelte Aufsätze von Ingenieur Friedrich Dessauer. Band I. Preis, brosch., M.3.50; gebd., M.4.20.
Beiträge zur Klinik der Tuberkulose. Herausgegeben von Dr. Ludolph Brauer, a.o. Professor an der Universität Marburg. Band III. Heft 2. Einzelpreis, M.4.50.

UNIVERSITY PRESS, Cambridge (C. J. CLAY AND SONS, and H. K. LEWIS, London).
The Study of Chemical Composition. An Account of its Method and Historical Development, with Illustrative Quotations. By Ida Freund, Staff Lecturer of Newnham College, Cambridge. Price 15*s.* net. (Cambridge Physical Series.)

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BARRETT, WILLIAM AMHERST HENRY, L.R.C.P. Lond., L.R.C.S. Edin., has been appointed Officer of Health to the borough of Newtown and Chilwell, Victoria, Australia, and to the shire of Meredith.
FISHER, WALTER, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Government Medical Officer and Vaccinator at Weston, New South Wales, Australia.
GAMBLE, MORRIS FREDERICK HORSLEY, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Deputy Medical Superintendent of the Metropolitan Lunatic Asylum, Kew, Victoria, Australia, during the absence on leave of Dr. Mullen.
GILL, J. MACDONALD, M.D. Lond., has been appointed Honorary Physician to the Royal Alexandra Hospital for Sick Children, Sydney, Australia.
HAY, A. G., M.D. Glasg., has been appointed Certifying Surgeon under the Factory Act for the Maryhill (Glasgow) District of the county of Lanark.
JAMIESON, J. W. M., M.B., Ch.B. St. And., has been appointed Physician to the Dundee Royal Infirmary.
JONES, P. SYDNEY, jun., M.B., Ch.B. Syd., has been appointed Honorary Surgeon to the New South Wales Deaf, Dumb and Blind Institute, Sydney, Australia.
SADLER, E. A., M.D. Lond., has been appointed Certifying Surgeon under the Factory Act for the Ashbourne and Mayfield District of the counties of Derby and Stafford.
STOKES, E. S., M.B., Ch.M., has been appointed Medical Officer and Bacteriologist to the Sydney Metropolitan Board of Water Supply and Sewerage.
TODD, J. N., M.B., Ch.B. Glasg., has been appointed Medical Officer to the Imperial Government Remount Depôt, Mooi River, Natal.
YOUNG, T. B., M.D. Brux., has been appointed Certifying Surgeon under the Factory Act for the Halesowen District of the county of Worcester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARMY MEDICAL SERVICE, 62, Victoria-street, London, S.W.—Examination of candidates for not less than 25 commissions in the Royal Army Medical Corps.

ASHTON-UNDER-LYNE, DISTRICT INFIRMARY AND CHILDREN'S HOSPITAL.—Resident House Surgeon. Salary £120 per annum, with board, washing, and lodging.

BIRMINGHAM, QUEEN'S HOSPITAL.—Honorary Ophthalmic Surgeon.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—House Surgeon, non-resident. Honorarium at rate of 40 guineas a year.

CHEETHAM, MANCHESTER JEWISH HOSPITAL.—Resident Medical Officer. Salary £80.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Anæsthetist. Also Clinical Assistant for three months.

CHESTER GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with residence and maintenance.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—Junior House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Assistant House Surgeon. Salary £60 per annum, with rooms, board, washing, and attendance.

DERBYSHIRE ROYAL INFIRMARY.—House Surgeon No. 2 and House Physician for 12 months. Salary in each case £100 per annum, with apartments, board, &c. Also Assistant House Surgeon for six months. Salary at rate of £60 per annum, with apartments, board, &c.

GROCERS' COMPANY'S SCHOLARSHIPS.—Two Scholarships (or Sanitary Science, value £300 a year, with allowance, tenable for two years.

HELLINGLY, EAST SUSSEX COUNTY ASYLUM.—Senior Assistant Medical Officer, unmarried. Salary £300 a year, with board, lodging, washing, and attendance.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—Assistant Physician. Also Assistant Casualty Medical Officer, unmarried, for six months. Salary £20, with board and residence.

INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing.

KING EDWARD VII. SANATORIUM.—Medical Superintendent. Salary £500 per annum, rising to £800, with board, lodging, and attendance.

NEW ZEALAND, UNIVERSITY OF OTAGO.—Professor of Physiology. Salary £600, with half of class fees.

NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeon for six months. Honorarium £20, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL OF LONDON.—Demonstrator in Mechanical Pupils' Department. Stipend £120, rising to £150 per annum.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Surgeon; also Junior House Surgeon. Salaries £100 and £80 per annum respectively, with rooms, board, and washing.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Two Resident Medical Officers, unmarried. Salary £80 per annum, with board and lodging.

WALSALL AND DISTRICT HOSPITAL, Walsall.—Assistant House Surgeon. Salary £50, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory Act at Abingdon, in the county of Berks; at Alresford, in the county of Hants; at Kidwelly, in the county of Carmarthen; and at Peterborough, in the county of Northampton.

Births, Marriages, and Deaths.

BIRTH.

NORTON.—On Jan. 1st, at Kennington Park-road, S.E., the wife of H. Harvey Norton, L.R.C.P., M.R.C.S., of a son.

MARRIAGE.

CARLING—COLEBROOK.—On Dec. 29th, 1904, at St. John Baptist Church, Kidmore End, Oxon., by the Rev. J. E. Smith-Masters, assisted by the Rev. Canon W. W. Fowler, Henry Frank Carling, second son of William Rock Carling of Guildford, to Esther Lillie Colebrook, M.D., younger daughter of the late George William Colebrook of Reading.

DEATHS.

COPLEY.—On Dec. 26th, 1904, at Mounpesson House, Wisbech, Cambs., William Henry Copley, Esq., M.R.C.S., L.R.C.P., aged 49 years.

EDMONDS.—On Dec. 29th, 1904, of phthisis, at the Vale of Clwyd Sanatorium, N. Wales, Arthur James Edmonds, M.B., Ch.B., son of the Rev. Herbert Edmonds, of St. Alban's Vicarage, Rochdale, late A.M.O. Bethnal Green Infirmary, formerly H.P. Manchester Royal Infirmary, aged 26 years.

HALE.—On Dec. 31st, 1904, at High-street, Eton, Geoffrey Edward Hale, M.B., aged 35 years.

KNOWLES.—On Dec. 28th, 1904, at Hardshaw-street, St. Helens, Herbert William Knowles, M.D., aged 48 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"CURE IN AN HOUR" BY RAZES.

Abou Bikr Mohammed ibn Zakarya ar Razy, usually known as Razes, was one of the most illustrious physicians of the Arabian school and flourished in the tenth century, his death having taken place about A.D. 930. He is said to have been the author of some 200 works but it must be remembered that many treatises of Arabic medical writers are short ones, more of the nature of tracts than lengthy books. One of his most important works was upon Variola. Of his minor productions there is one entitled "Cure in an Hour" which has not hitherto been translated into a European language, though the Indian Mussulmans from time to time bring out very imperfect Arabic editions. Manuscripts of the work of more or less value are in the libraries of Paris, Berlin, Munich, Oxford, and Gotha, and there is an excellent one at Cairo. Dr. P. Guigues, professor at the Faculty of Medicine and Pharmacy at Beirut, possesses a valuable one also and there is a faulty copy in the library of the St. Joseph University at Beirut, useful, however, for collation with the Cairo text, because it is a member of the same family of codices. Professor Guigues, who recently published a much larger Arabic medical work, "The Book of the Art of Treatment," by Najm Ad Dyn Mahmoud, with a valuable essay upon Arab pharmacy, has now translated into elegant French the little book of Razes, adding many valuable notes and giving a complete version of the Arabic as well (La Guérison en Une Heure par Razes, par le Dr. P. Guigues. Paris: Paul Geuthner, 10, Rue de Buci. 1904). In a kind of preface Razes presented an account of the reason which induced him to produce the work, which was that on one occasion the Vizir Abi-l Qassam Abdallah was discussing the question of disease and some of the disputants asserted that some illnesses, which resulted from the accumulation in the body of deleterious matter which before becoming manifestly injurious had been going on for days or even months, required in many cases days or months for their cure. But Razes added to the conversation that, on the other hand, there were some maladies which, if sufficient medical skill was attainable, could be cured in an hour. Thereupon the Vizir commanded him to produce a book stating what they were and the means for effecting their rapid cure. Razes added in his prefatory note that it was his practice in his books to commence with the head and to discuss the various maladies until arriving at the feet and he would take the same course upon this occasion but as the diseases of some members, or parts of the body, could not be cured in an hour these would be passed over. The value of his treatise, it is better to state at the outset, is not so much, if at all, in the remedies which he proposes, as in the light that it throws upon the Arabic pharmacopœia, which is immensely enhanced by Professor Guigues's copious notes. It commences with headaches in the frontal region, for which Razes advises inhalation of Egyptian opium, that is, the juice extract of the papaver somniferum L. var. nigrum, obtained by incision of the capsules. He was, of course, recommending a comparatively pure drug, not the much adulterated modern Egyptian variety. Another remedy suggested is dried coriander seed. He also advises a little bleeding and the taking of jujubes, but as he does not define their ingredients and as the varieties of them among the Arabs were very great it is useless to discuss these. The cause of headache in the central part of the cranium Razes attributes to excessive heat, advising a local application of oil of roses, vinegar, and wine, promising instant relief. Another recipe is to inhale a concoction of nymphæa alba and to eat cucumber rind steeped in vinegar.

For toothache Razes recommends staphysagria, the delphinium staphysagria of Linnæus, and also the sugar of another plant, the asclepias procera, which was a discovery of Arabic herbalists. The remedies for migraine are two: first, fumigation with cyclamen or the bones of a dog. If it is caused by facial paralysis barley-water, soaked barley mixed with gum ammoniac (dorema ammoniacum), and opopanax were to be prescribed. For epilepsy three plants, the cuscuta epithymum, the polypodium, and the lavandula stœchas, mixed with raisins, are promised to postpone any attack for a week. For epistaxis the insertion of alum in the nostrils is recommended and for hæmorrhoids fumigation with arum and the internal administration of the same herb is stated to be most efficacious. Wounds are best healed by an ointment consisting of lithocolle, which was a mixture of powdered marble and the size or glue of the skin of oxen, and camphor, kneaded with honey and oil.

Perhaps the recipes for the cure of colic will present as good an indication of the nature of Razes's treatise as any others that it offers. The first suggests taking "The Kingly Electuary," a universal remedy given us by Avicenna, who says that it was the "chief of all medicaments." Really, it was a very ordinary electuary having for bases myrobolans, pepper, ginger, and so on. A dose of the size of an almond might be taken at any time and by some persons daily, hence it was also called the "Annual Electuary." Razes, however, thinks a superior recipe is as follows. Citrullus colocynthis from which the skin is removed made into a suppository and so used will cure instantly unless the pain is very violent, in which case a handful of coriander, a little cumin and carum carui, and pomegranate seeds

are to be boiled, some honey added, all well beaten together, and the mixture drunk, when immediate relief is promised.

Other diseases referred to are anginæ, dysentery, numbness, chilblains, itch and mange, burns, and wounds. For suppuration of the eyes a green "tutty" is prescribed; this collyrium would consist of copper perhaps mingled with zinc.

ELECTRICAL VIBRATION AND ELECTRIC BELTS.

A CORRESPONDENT writes from Ireland asking for a hint regarding the genuineness or otherwise of a certain institute which has been started in one of the cities there for the purpose of exploiting a system of electrical vibration. Our correspondent suffers from "a noise in the ear" and contemplates applying there for treatment. We may point out that in the great majority of cases the term *electrical* vibration is quite misleading. Electricity has nothing to do with the treatment except in so far that an electric motor is used to drive the vibrator or percussor. The latter can be driven by any other source of power with identical results. We think that our correspondent will not be well advised in placing himself in the hands of the persons referred to without first consulting a qualified practitioner. It is extremely improbable that an American trading concern is in possession of any therapeutic means of special value which is not already possessed by medical men who have given special attention to diseases of the ear. As the particular symptom referred to—noise in the ear—may be due to any one of a variety of causes, it is absurd to expect one single form of treatment, vibration or other, to be applicable to all these morbid conditions. Another correspondent writes from Cape Colony, saying that a large proportion of the male element of the population there suffer from "exhaustion of manhood" as a result of sexual excess. To meet this difficulty the inevitable electric belt is apparently being introduced, with considerable success so far as the vendors are concerned. We are asked to state our opinion as to the value of these appliances. It might have been thought that after all that has been said and done in the matter of electric belts they would by this time have shown some loss of vitality as regards their successful sale. Evidently this is not so and in all probability they will continue to flourish so long as a gullible public exists upon which to foist them. For the benefit of our correspondent we may observe that as the average resistance of the human body is roughly several thousand ohms, and as the electro-motive force generated by any electric belt that we have examined is so small as to escape detection, it is difficult to see how, even with the assistance of the greatest efforts of the imagination, they can cause any electricity to flow through any part of the body. The electrical treatment of this form of trouble in the hands of those who have seriously and scientifically studied the value of this agent in the treatment of disease, is none too satisfactory and still less is the haphazard use of these appliances likely to be.

AN INNOVATION.

To the Editors of THE LANCET.

SIRS,—It is with extreme regret that I see by the last issue of THE LANCET that you have taken umbrage at my Christmas notice. I also do now see the error I have committed. It was done to save time and expense, but I now appreciate how much like an advertisement it appears. It is an innovation which will not recur, nor, I hope, be copied.

Yours truly,

New Bond-street, W., Jan. 2nd, 1905. REGINALD NITCH-SMITH.

STREET AMBULANCES.

WITH reference to the annotation in THE LANCET of Dec. 24th, 1904 (p. 1798), on the subject of the desirability of securing an efficient ambulance service for London Messrs. Wilson and Stockall of the Ambulance Works, Bury, write to us pointing out what some of the large provincial towns are doing in the matter of the provision of ambulances and litters. Messrs. Wilson and Stockall have just received from the city corporation of Manchester orders for several additional horse ambulances and also for litters similar to those already supplied to that city and to Birmingham, Sheffield, Blackburn, Burnley, Bradford, Bristol, and Stockport.

PHYSICAL CULTURE.

To the Editors of THE LANCET.

SIRS,—As a medical man who is interested in physical culture may I add a few words to your comment on the subject in a recent issue in which you somewhat adversely criticise Sandow's curative system as practised and Mr. R. Beswick's action in lauding the same in the public press? Whether or not a medical practitioner is following out the ethics of his profession when he conscientiously extols Sandow's system in the lay press is not the point on which I desire to dwell, though I myself published an article in *Sandow's Magazine* in that vein. The main question involved is whether Mr. Sandow is not justified in carrying on his curative system by physical culture and is at the same time worthy of the support of the medical profession. I hold that the answer is distinctly in the affirmative and fail to see what argument can be brought forward to the contrary.

The relief and cure of many functional disorders such as constipation, indigestion, &c., some deformities due to muscular weakness, and weak chests by the systematic use of certain graduated physical exercises is most assuredly perfectly rational, while the results obtained only confirm what Mr. Sandow claims. When (as I have myself ascertained by careful investigation) such exercises are scientifically applied and accompanied by hygienic rules regarding diet, bathing, fresh air, &c., and when the coöperation of the medical profession is invited in every possible way, what excuse can there be to belittle the good work Mr. Sandow is doing? As Mr. Beswick justly points out, the personal superintendence of a medical man is quite unnecessary, except maybe in some special cases where some organic defect exists, and here Mr. Sandow always seeks medical assistance. I hold no brief for Mr. Sandow and I would ask any medical man who doubts the efficacy or methods of Sandow's system to call at the head office where every opportunity will be most courteously given to investigate for himself and to make sure that the claims of Mr. Sandow do not mean obtaining money under false pretences. If I have a patient who I think requires special physical exercises for some reason or another to whom can I send such if not to Mr. Sandow? I cannot trust the patient alone and have not the time or capability to see to the matter myself. Perhaps those who do not believe in Mr. Sandow can answer me this query. Maybe many who are not conversant with Sandow's system may confound it with other so-called systems run by charlatans who live on the fears and weaknesses of humanity.

I am, Sirs, yours faithfully,

C. STANFORD READ, M.B. Lond.,
King-street, W.C., Dec. 28th, 1904. M.R.C.S. Eng., L.R.C.P. Lond.

Dr. W. Jones.—We do not know of any special treatise on the pneumococcus or the infections produced by it but there is an account of it given in most, if not all, of the larger works on bacteriology. References to pneumococcic infection will also be found in treatises on medicine. For instance, pneumococcic colitis—a rare condition—is described in Clifford Allbutt's "System of Medicine," vol. iii. (published in 1897), p. 943. A very extensive literature of the subject extending back for nearly 20 years is to be found in European and American medical journals and transactions of societies, associations, and congresses. Among the more important memoirs published in THE LANCET, either in full or as abstracts, since 1900 mention may be made of the following, some of which contain many bibliographical references:—Pneumococcic Arthritis, by Dr. E. J. Cave, Jan. 12th, 1901, p. 82; Toxins of the Pneumococcus, by Dr. A. G. Auld, Feb. 23rd, 1901, p. 553; Pneumococcal Peritonitis, by Dr. John H. Bryant, July 20th, 1901, p. 147; Pneumococcic Gastritis, by Professor Dieulafoy and others, August 17th, 1901, p. 460; Pneumococcic Infection, by Mr. A. G. R. Foulerton, August 17th, 1901, p. 472; Pneumococcic Inflammation of Mucous Membranes, by Dr. Charles Cary and Dr. I. P. Lyon, Oct. 19th, 1901, p. 1060; Pneumococcic Gastritis, by Mr. A. G. R. Foulerton, Jan. 25th (p. 228) and April 12th (p. 1027), 1902; Pneumococcal Arthritis, under the care of Dr. G. R. Murray, June 7th, 1902, p. 1604; Pneumococcus in the Blood, by Dr. Rufus I. Cole, Oct. 18th, 1902, p. 1070; Croonian Lectures on Pneumonia, by the late Dr. J. W. Washbourn, Nov. 15th (p. 1301), 22nd (p. 1378), 29th (p. 1439), and Dec. 6th (p. 1528), 1902; Virulence of the Pneumococcus, by Dr. H. Sinigar, Jan. 17th, 1903, p. 169; Pneumococcic Peritonitis, by Dr. von Brunn, July 18th, 1903, p. 188; Pneumococcic Arthritis, under the care of Mr. L. A. Dunn and others, August 1st, 1903, p. 316; Pneumococcal Peritonitis, by Sir Dyce Duckworth and others, Jan. 16th, 1904, p. 159; Pneumococcic Infection of the Eye, by M. P. Le Gendre and others, May 28th, 1904, p. 1519; and Pneumococcus Endocarditis, by Dr. T. J. Horder and Dr. A. E. Garrod, June 4th, 1904, p. 1561.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (11th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (12th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square, (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.).

SATURDAY (14th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (10th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Dr. D. Lawson: Some Changes which take place in the Lungs and Pleura, chiefly in Pulmonary Tuberculosis, as shown by Skiagraphy (epidiascope demonstration).

SOCIETY FOR THE STUDY OF INEBRIETY (Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.).—3.30 P.M. Council Meeting. 4 P.M. Discussion on Alcohol in its Relation to Deterioration (to be opened by Mr. W. McAdam Eccles).

WEDNESDAY (11th).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—9 P.M. Mr. R. Godlee: Shifting Dulness and its bearing on Surgical Conditions. (Hunterian Lecture.)

DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M. Demonstration of Cases of Interest.

THURSDAY (12th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. G. Elder and Dr. I. Parsons. The President: Valedictory Address.

HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8 P.M. Smoking Concert.

FRIDAY (13th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Dr. T. J. Walker (introduced by Prof. H. Marsh): Acute Ascending Paralysis in Cases of Chronic Cystitis.—Mr. R. C. Lucas: A Case of Accidental Electrocution causing extensive Gangrene of all the Extremities.—Dr. W. Ewart: A Case of "Soft Valve" Mitral Stenosis in which no Murmur was heard.

LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—4.15 P.M. Annual General Meeting. 5 P.M. Ordinary Meeting. Cases, &c., will be shown by Dr. StClair Thomson, Mr. P. de Santi, Dr. H. Tilley, Sir F. Semon, Dr. F. Powell, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—College reopens.

TUESDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Taylor: Clinique. (Medical.) 5.15 P.M. Dr. G. E. Herman: Leucorrhœa.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Opening Lecture:—Mr. J. Langton: Points which should be considered in determining the Prospects of the Operation for the Radical Cure of Hernia.

WEDNESDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Clarke: Clinique. (Surgical.) 5.15 P.M. Dr. J. E. Squire: The Elements of Prognosis in Pulmonary Tuberculosis.

THURSDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. A. H. Tubby: Orthopædic Surgery.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M. Mr. J. Cantlie: Beri-Beri.

CHARING CROSS HOSPITAL.—4 P.M. Dr. Murray: Demonstration of Medical Cases. (Post-Graduate Course.)

FRIDAY (13th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. D. Grant: Clinique. (Ear.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1904, which was completed with the issue of Dec. 31st, are given in this number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1904 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.* carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Stewart's Instruments.)

THE LANCET Office, Jan. 5th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb	Dry Bulb.	Remarks at 8.30 A.M.
Dec. 30	29·79	W.	0·06	71	52	50	49	52	Raining
,, 31	30·23	N.	...	61	44	39	36	40	Fine
Jan. 1	30·60	S.E.	...	47	40	33	32	35	Cloudy
,, 2	30·65	S.W.	...	41	41	28	Fzn.	31	Overcast
,, 3	30·44	S.W.	0·12	50	49	31	41	41	Overcast
,, 4	30·22	W.	...	53	51	41	44	47	Cloudy
,, 5	29·75	W.	0·20	53	49	46	47	48	Overcast

During the week marked copies of the following newspapers have been received:—*Hong-Kong Gazette, Westminster Gazette, Surrey Advertiser, Reading Mercury, Mining Journal, Local Government Chronicle, Daily News, Liverpool Post and Mercury, Daily Chronicle, Standard, Literary Digest, Aberdeen Weekly Free Press, Plymouth Mercury, Halifax Courier, Freeman's Journal, Hertfordshire Mercury, Windsor and Eton Express, Belfast News, Liverpool Courier, Belfast Whig, &c.*

Communications, Letters, &c., have been received from—

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E.—Dr. L. E. Ellis, Leicester; Eucryl, Ltd., Hull; Edmonton Urban District Council, Inspector of Nuisances of.

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